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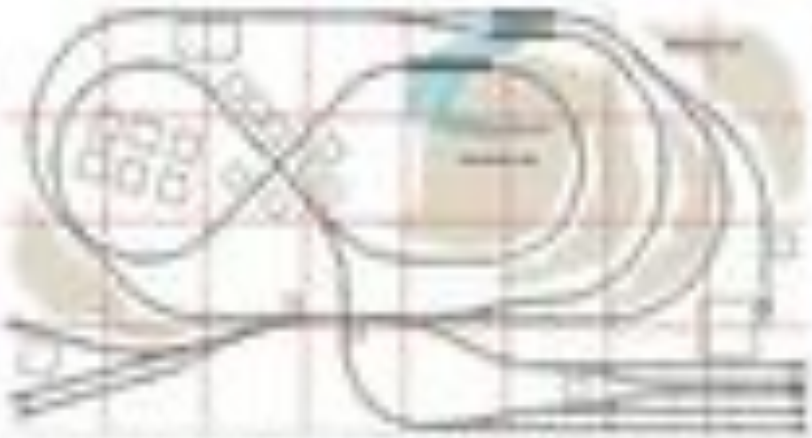

Figure 8¹

It could be said that this N scale layout, built entirely with **KATO UNITRACK**, is a "figure 8 to the power of two" — two distinct train operations, that is!

It is actually two separate layouts, both within a 4' x 5' area, with a shared yard, spur tracks and passing siding. These two routes provide plenty of activity within a small space. The figure 8 in the center of the layout is an ideal route for one or two of **our recent RDC models**. Use some of our **new Residential Structures**, with a couple of **Industrial Buildings** and **Mamie's Restaurant**, at the junction to create an active downtown area. If the right end of the figure 8 tunnels under a mountain, as illustrated, it will create the illusion of distance before your railcar returns to town.

On the outside of the layout is a nice route for the operation of one of our **new Mikado steam locomotives** or a small branchline switcher locomotive, such as our **NB-2** unit. The turnouts at the lower left and top right give you good opportunities to pick up and drop off a car (or two) while making the daily rounds. The passing siding also gives you room to park your slow-moving freight operation ahead a short string of **passenger cars** powered by an **E8/9** passing by.

Our **Wooden Railroad Structure sets** would be a great choice for highlighting the shared yard in the lower right corner of the layout. Position a **Signal Tower** at a few of the critical turnouts and the **Rural Freight Platform** at the end of the spur tracks and you have a beehive of activity on your small town plot!

For more detail about this track plan and others that can be built quickly and easily with UNITRACK, visit our web site at www.katousa.com. You'll also find information there about the highlighted models and structures mentioned above.

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RAILMODEL JOURNAL

How YOU can do it BETTER

June 1995 Volume 1, Number 1

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From the Editor

Still more to learn

Kalt Bonnyagloff, Editor

Long time readers: a bit earlier a note here on this page – dated 2 Kalt pondered to subscribers would be the new edition of Model Railroader magazine.

I've been building model railroads (such as my late, never-completed, shoestring 1/87 layout as a school of hi gauge trainers that started after my sons went there and crashed all over the room. I was editor of Classic Toy Trains magazine, Model Railroader's sister publication. Today, two of our sons, still grown up and entering high school, is building an N scale layout in the set Brad's constructed.

Throughout the years I've picked up a wealth of knowledge about building and operating model railroads. Much of what I've learned has come from books on engineering, supplemented with "hands-on-ing."

Sometimes our books seem to be out of national bestsellers that it should have more the workshop also. As I began growing here, scale has failed (still), and both dates, all to my wife's dismay.

My has the biggest thing I've learned about model railroading is what there's always more to learn. There are levels of model research, of subcategories that I've learned from this issue.

I believe reading Steve Weber's mystery story on page 78, a novice would have succeeded in the short 1 could create changes of electronic gizmos in a vehicle short and then expander there in a field on the layout. Weber's other techniques are new to model Railroader.

Model's Project track plans on page 78 range around the town south and east, northern, and again on the below. If someone we follows most were a little using bridge I learned that was you needed a wreck of the Mississippi Rivers create a customer and to a super bridge number there having a scenic feature would the mighty Mississippi for one).

And the Locomotive story on page 62 almost key accessible about bonus plan a train race on the screen. I think on the core crash of Orlando has 14 years, but a server opened we may that the last scenic from Weber – refrigerator, and boats, and all – moved for a cover beside for a layout.

There are just more of the things I've learned since this month's issue. Now if I can ever remember me with a picture that I'm in good shape.

Kalt Bonnyagloff

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Industry news

New in O gauge

A UNIQUE OFFER? This year marks Classic Toy Trains magazine's 20th anniversary. To celebrate, have always wanted a 77' delivery truck or refrigerator car to call your own? Here's a spy photo of one of the items we're planning to offer in our upcoming 1:48 scale Whitcomb die cast metal delivery trucks that will sell for 104.95, and our O gauge wood side reefer cars from Atlas O that will sell for 249.95. We expect both to be in house and ready for orders by mid-spring. So please don't call us with a just yet ... we're still figuring out postage and handling costs. Complete ordering information will be in the April issue of CTT, which will be in subscribers' hands the last week in March.

Appeals court sends MTH-Lionel lawsuit back to square one

A FEDERAL appeals court has paved the way for a new trial in the 146 million tug-of-war between MTH and Lionel over O gauge locomotive drawings stolen in South Korea more than seven years ago.

The Sixth Circuit Court of Appeals effectively nullified the 2004 decision of a Michigan district court jury that granted MTH millions of dollars in damages resulting from the theft.

The appeals court announced on Dec. 14 that a trial to retrial the issue in court, denied Lionel's request for a new trial.

"Obviously, we are gratified and feel vindicated by both decisions" said Lionel president and CEO Jerry Calabrese in a prepared statement.

Appeals court findings

The appeals court faulted the lower court for allowing testimony from a mechanical engineering expert who

stolen from the drawings used by Lionel's South Korean manufacturing partner Korea Brass were admissible against Korea Brass under MTH's manufacturing partner confidentiality.

The court also stated that the portion of the jury award for "unjust enrichment" — $12.8 million — was excessive.

Lastly, the court reversed an injunction that had kept Lionel from using the disputed locomotive plans.

Michigan jury agreed with MTH

In June 2004, a U.S. District Court jury awarded MTH more than $40 million in damages after it found that defendants Lionel L.L.C., Korea Brass, and Korea Brass representative Hon Chun Yong unfairly profited from stolen MTH blueprints used in the production of high-end Lionel steam locomotives.

Lionel Board Lionel Fellow of misappropriation of MTH's "trade secrets." The appeals court affirmed that the drawings were indeed trade secrets.

MTH had sued Lionel in April 2000, charging that Lionel knew — or should have known — that the blueprints used to build the Lionel locomotives had been stolen. MTH said the Korea Brass audit revealed were created in connection for a company that had no previous experience producing die-cast metal articulated O gauge locomotives.

Locomotive blueprints

The digital blueprints were stolen in 1998 or 1999 and, according to the lawsuit, were discovered at the facility of a design firm that did sub-contract work for Korea Brass. Four South Koreans were arrested by South Korean authorities and subsequently convicted in the case, according to the lawsuit.

A [illegible] The Live Trains 2007 product line will be led by the new K1 Celebration class 4-6-0. The O gauge model is a three-rail, DCC fitted, powered 4-6-0 in the tradition of Bassett-Lowke's pioneer steamers. Five-rail road names include London Midland & Scottish Railway, London North Eastern Railway, Southern Railway, and British Railways. Pre-grouping liveries as well as Australian and New Zealander versions will also be available. The O gauge locomotive will cost £199 on release (£169 excluding value-added tax in the European Union customers will note the £1 reverse a value added tax discount). For more information please see Celebration class, go to [illegible].com.

A [illegible] Low Fell Yard: O-Helper Services steel-bodied mail trainers are the way. 21007 Norfolk & Western and 21008 Frisco. The 3 gauge cars come in two road numbers, and they feature great graphics, and the cast metal and nice plans, and cost £42.99 each. Order direct at showcaseline.com.

A [illegible] Classic Construction Models offers a 1:48 scale brass Caterpillar 963C track type loader. The model, a limited edition of 500, comes with accurate detailing that was verified by Caterpillar engineers. A-class £699.95. Order direct from Classic Construction Models at [illegible].com.

A [illegible] New from TW Books and Video is the DVD building an O gauge layout, which features Lionel's FasTrack system. The DVD also contains an earlier DVD release, How to Build a Layout, which focuses on layout construction using traditional tubular track. The DVD runs 180 minutes and costs £19.95 plus shipping. Get your hobby retailer to order direct from TW Books and Video, Box 279, New Buffalo, MI 49117, call 800-892-2832, or go to [illegible].com.

[illegible]

[illegible] cauliflower, green cabbage, purple cole slaw, and red tomato, green leaf lettuce, a cook with a cauliflower hat, and cabbage patch. Each engine measures 9.5 inches long and is each side weighs 4 lbs. It runs on 18 inches and costs $149. Shipping is $7. All are subject [illegible] condition and 4 percent sales tax. Every choice is to be Engine 149 Weekend Six, etc. title. Also, The Candy Cab was [illegible] or go to [illegible].com.

Western Models offers the **new #1331 coal load for Sept Italy Hoppers**. The load has a solid base with a real coal load mapping and costs $5.99. See your hobby retailer or go to [illegible].com.

Woodland Scenics offers **three new figure and detail sets** for your O gauge railroad. The sets, #1799 assorted male set ($19.99), #1748 assorted girl set ($19.99), and #1751 assorted set ($19.99). See your hobby retailer or [illegible] at [illegible].com.

News in S-gauge

New paint schemes for S-Helper Services MRC switchers is MRC's update on modernized versions as well as a heavy Atlantic Mongrel Northern & Western road and gas in black and red. Prototypical [illegible] Subway and a [illegible] gasoline and heavy-duty diesel and service engines. The locomotive runs [illegible]

▲ **HOLIDAY HYBRID.** With production samples at its Lionel "Visor Button" HQ soon-memorial train set is making rounds of holiday shows and dealer previews. The miniature gasket O gauge diesel locomotive includes giant side artwork that rotates with the train's movement, but hidden drive wheels actually propel the locomotive. Each of the three-car hauling freight cars has a door that opens automatically, sailing off a smoke unit and flashing LED lights to simulate popping open the door in a hurry. The six-piece consist with Proto-Sound 2.0, due for $499.95. Delivery is expected in spring 2007.

▲ **NEW BEGINNINGS.** Weekly Model Train has announced three new cameo cars for the all O gauge "Buddy" Rail Diesel Cars: Alaska (#) (shown above), Long Island (#), and Quarry Rail Services. The flexible feature-upgraded electronics let pilots run using three or locations, with the forward unit's headlight on and two markers off, the middle unit's headlights and markers off, and the rear unit's headlights off and rear markers on. The locomotive units cost $69.95 each plus shipping. See your Weekly Model Train retailer or go to weeklymodeltrain.com.

■ PUNCH LINES: MTH Electric Trains is showing off seven paper cut-to-reveal Pacific Heritage locomotive series. The paint schemes were made by the railroad as a means to recognize the past owners that comprise the modern Union Pacific. Shown are the Union Pacific, Southern Pacific, Rio Grande, Missouri Pacific, Chicago & North Western, Wisconsin Central Ltd. and Western Pacific models.

■ SHEDDING LIGHT ON THE DAYLIGHT: Check out the newest addition of the Trainmaster series from Specialty Press: Southern Pacific Daylight Steam Locomotives by Kenneth Johnson. This 112-page book, which has 250 black-and-white and color photos, sells for $39.95 at your hobby retailer or direct from Specialty Press (call 800-895-4585 or go to specialtypress.com).

■ STRAILERS LANDSCAPE: The latest DVD featuring the famous Chow Chow Barn model train layout is available now. Chow Chow Barn, Trainmaster, U.S.A. 2000 Edition, no. ACP3, runs approximately 20 minutes, covers all aspects of the famous tourist attraction, and runs $19.95 plus shipping. Order direct from the Chow Chow Barn, Rt. 141 E., Box 108, Strasburg, Pa. 17579; call 800-950-2626; or order online at straildog.com.

■ SUMMER MOVEMENT: The Sacramento Valley American Flyer Club is offering a limited-run American Flyer Sacramento Northern insulated boxcar for delivery in May 2001. The custom cars will be numbered consecutively, the May 2001 Flyer has been done in Sacramento, Calif. It sells for $35 plus $7 shipping for the first car and $4 for each additional car. Order from the Sacramento Valley American Flyer Club, Box 1414, Elk Grove, Calif., 95759. A Lionel paint sample is shown above.

■ THE BIG BRAND, BIG HOBBY STYLE: Williams Electric Trains offers a catalog celebrating its Golden Memories and Traditional product lines. The 46-page, full-color catalog costs $3. Order direct from Williams Electric Trains, 6810 A Columbia 1460 Pkwy., Columbia, MD 21046 or call 410-964-7466.

MOUNTAINS AND HILLS Mr. Ables Eric subcontrol fluid gaze can Del Everett to stories, tune year. Stewart albums are the new. [illegible] Chesapeake & Ohio gondola with load (LLL Kit: prod (for 1952/2014 1 single-door boxcar (LLL Kit).

MISSING UPDATE The second set love all the Standard Catalog of Lionel Trains. Hart Held by Carroll Doyle a scale date sure. The volume features more color photos than the first edition and costs $42.95. Use your hobby or book retailer.

LOCK CONTAINER Loaded good a the crossmodal yard to the new 1:16 scale Kalmar container loader from Mainstart. The non-powered model features a movable cabin, an extension boom, and a variable container lifter (with container), and it costs $32.99. See your die-cast metal model retailer or go to shown accessories.

WORKING IN THE GARAGE Everyone has a gas station or their layout, so take it to the next level of detail with 1:43-scale die-cast metal garage detail kits from GMP. Shown is the no. GMP4410. Also available is no. GMP4414-1 which features jack stands, ramps, a creeper and other shop details. The sets cost $14 each. See your hobby retailer or order from Diecast Direct, 6950 Old Lawrenceburg Rd., Frankfort, KY 40601, call 502-227-8687, or go to diecastdirect.com/trk.

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What may on scale lay-outs, some a few differences are evident between the Milwaukee Road's Pullman Standard Super Dome and a Great Northern Budd Dome car. Both HO scale models are available from Walthers Photo by Jim Hediger

Full-length dome car variations

For years references to full length dome cars that saw a variety of names including the Domes, dome theme, and Super Domes. Can you explain the differences between those entertaining passenger cars? Mike Andrew, Indianapolis

Full-length dome cars were built new by only 10 railroads in the 1950s for use on signature runs on the busiest routes of four railroads. For expressing, full length dome car could serve as more passengers could glass at short coaches. Small lesser coaches.

Lack of many destinations cars served as a good advertising feature for its lines which explains the different names for basically similar cars. The large dome provided plenty of non-revenue lounge seating in a single car – an important consideration at a time when long train lengths were an operating concern.

The Milwaukee Road inaugurated "America's first all-dome national lounge cars" with 10 Super Domes that were built by Pullman-Standard and delivered in late 1955. These cars maintained 16-77 coach (P) passengers on the lower and 28 in a lower level cafe lounge. The roof dome misdemeanored as a refined view of the passing scenery, but the main room sat low in the body so the roof height proved not the view forward.

The 10 cars were only six-wheel trucks fitted with large outboard springs to help reduce body roll. All of the air conditioning and mechanical equipment was located in the mid compartment so the lower level was the smoke.

The Milwaukee Road assigned the Super Domes to its Olympian Hiawatha (Chicago-Seattle-Tacoma) and the rest to the Morning and Afternoon Hiawathas (Chicago-Minneapolis).

The Milwaukee Road's Super Domes introduced the full-length dome car, but their versions had low seating so passengers couldn't see much to the front

The Budd full-length domes had both lunch and lounge seating. All of the seats were mounted on raised platforms to give passengers a good view forward

Build full-length domes. The Arizona, Virginia & Santa Fe placed the last order for 14 full-length diesel-electric switchers that were built by the Model S.A. in 1954. Named Big Chiefs, the locos (in use) had 7 driven axles (3 each end of a rigid wheelbase) and 4 idler axles. Two different cross-body units were built: eight cars (344-113-1 had a round crown and a 30-seat lounge for service on the 47-stations Chicago–St. Louis–Kansas City main routes. Six remaining cars (344-113-2 were built with a more spacious lounge and a 12-berth core dormitory for use on the less frequented Chief.

The family Pullman had several dozen floor plans, side windows, an end vestibule, and a different crown section over a center roof truss for ventilation. Each also featured a dome over its raised platform as passengers could see for miles from the roof of the cross. These cars weighed 94 tons each.

Backdrops have made 1951 models as cross models of the Santa Fe Big Chiefs.

Great Northern purchased five full-length domes, and its passenger service Chicago, Burlington & Quincy bought eight cars in 1951 for the Empire Builder between Chicago and Seattle. In keeping with the railroad's name, 531 advertised all of its domes cars (about an full length) as Great Northern. Dome lounge cars had a capacity of 44 passengers. The Great Dreamer also seated 12 passengers with 6 coach and 18 lounge seats on the upper level.

The 531's interiors also reflected its theme. Northwest scenery instead of the mountainous motif found on the Santa Fe cars. The 531 cars also weighed 94 tons each, but they had smooth, side panels painted to the Empire Builder's colors.

The Great Dreams were given individual car names (Glacier View Cafe View, Mountain View Lounge View, Prairie View and River View Dome).

More information on the cross fleet of North American dream cars of all sizes can be found on the Library Trains Special Interest No. 8, Dream Trains 2. — Jim Hedtgen, senior editor

Send your questions about streamliner railroading to Information Desk, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail anne.kreiter@kalmbach.com. We regret we can't answer all the questions we receive.

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Jim Kelly

How to keep piggybacks on track

Why fit an old Tahochman Micro kicker to run in 1960, intermodal railroading was well established, but we nothing like the scale we see today. What interested Kelly in the years was TOFC, trailer-on-flat-car), more commonly called "piggy" short for piggyback).

For my money there's nothing much more exciting than a string of empty pig gyback flats on passing by, and nothing much more interesting than a string of loaded ones. Yet in modern form but this type of long flat car available since the late 1980s, but Micro Trains picked the modern box when the first introduced in models of an American Car & Foundry 89-foot car in the early 1960s. (89 ft 6 in) was a well detailed car based on the 1960-64 ACF "Thrift-T" plate built the Trailer Train – ACF consortium in 1962. my prototype determined the fate.

It was several years before I finally had enough of a layout to run the cars, and the models were very disappointing. I was unable to keep them on the track. Their suspension system was big problems with flat or twisted. They don't weigh enough, even if the bodies are well detailed as mine. Worse still, I was here

The completed modifications improved reliability because the couplers transfer their forces to the carbody instead of the truck, reducing derailments.

sure metal trucks with plastic decks. Even so these cars give a nice weight to make much of a difference.

I've learned that one sure way to improve the performance of N scale rolling stock is to body-mount the couplers. Look at the underside of the car, though and you'll see that there's another reason to do so as well: the hinges holding the coupler to the knuckle that isn't designed to slide against.

To do this I disassemble the car and clip off the body tabs on the hinges that hold it in place so the knuckles can sit in running. Then I fasten the hinges to the support brackets with #4-40 screws.

These body-mounted couplers made for a considerable improvement, but the cars were still prone to derailments.

The problem remained lack of weight so I decided to weight the trailers and keep them on the cars permanently. I tried some stick-on lead weights for a time and got considerable improvement, although they made the trailers top heavy and when they fell over they were costly to replace.

The answer turned out to be short lead sheet for. A 3-mm (1/8-in.) thick. Two cuts to 2¼" x 4-¼" sheets, which gives enough to weight most trailers with some 2½" long. I cut it to shape and narrow enough to fit inside the trailers roof slot so it rests a little shallow cuts. I also cut a windows of plan to prevent the trailers to the cars. Now these cars are just as reliable as any others.

The decks of these cars were usually spotted with no rail when new my

Truck-mounted models

Couplers re-hinged for car mount

Suitable hinged support bracket

#4-40 screw

Couplers re-hinged to underframe

Truck-mounted models

Jim Kelly was pleased to see Micro Trains Line had come out with an ACF 89-foot flatcar in the early 1980s. When he got them on his layout, he had to modify them for reliable operation.

coating. The other surface was also a mistake and to much operators loading the cars although much of the time the deck was so dirty with grime and grease from the trailers that it was difficult to tell what color that might be.

It was here the option of weighting the loading gear wheels up or down came. Since there trailers was the generally one must have up on a loaded trailer, with the 40% wheel bearing all the weight.

I have a railroaders intermodal track at the Bridgeville yard, but most of my TOFC traffic is over Gilbreth. The few TOFC cars on my layouts are loaded and unloaded on an ore dock. That is an ore simple race were on a bridge to reach the second model and I did it all.

Now I'm on the guy contemplate up the line when loaded a trailer backwardly we that a room be extended. A switch crew has to make the car over to the turntable window to, and bring it back, which is a fun operation to perform.

Having any time period the trains by used a several flats on a piggyback many as an Automotive rack. The price was right, and it's got me how hard it could put for shelves down the track a more, and I bet it'll would be brought to a just a track new question. My wife's on this was to the trailers rack cross at Model Railroader.

Don't hoping something here helps you get more pigs on the racks.

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False floors make load swapping easy

Roger Kujawa and Bruce Brandner came up with the idea of using false floors to secure trains equipment and other loads on their HO flatcars. This allows them to run properly loaded or empty flatcars during operating sessions on Roger's Atlantic & Great Western RR. Photos by Jim Hediger

Prototypic operations has been a goal of mine through many eras of modeling. I especially enjoy the show & tell/operation role playing game. But whether in an operations setting or just some casual running around my Atlantic & Great Western RR

Maintaining the illusion of loaded and empty cars is one of the reasons I'm here building cars with removable loads. Hardwood cars can travel to anywhere at loads since there's no way to secure the loads. However, there's no question about an open top car or a gon's plastic walls when a car's loaded or empty status

Most freight and gondola loads haven't been a problem, but I was swapped when it comes to ore hoppers. Not as I couldn't figure out how to secure them and ballast reliably. Heavy machinery and other equipment and still easier than unloadable.

I tried using magnets that would "grab" the cars and weights, but often that still made the loads slide off. Adding a great deal weighed more than difficult to every loads. I also got to the last removed the idea had prevented, but I didn't like the idea of a heavy deck that created the cars underside. I wound up gluing all my loads to the flatcars. When white, I placed up a lot of interesting loads since and one load required the purchase of another flatcar to load it.

I'm a member of the Tomorrow Models Railroad Association's Layout Operations Special Interest Group, so I called the RR's Terminal Operations group saying, "Hey! I've come up with a way to secure loads that were attached to removable flatcar decks. The removable deck was on top and covers the car's original deck shape so the corner loads packets keep the load from shifting or moving.

I took the car's plan and ran with it. I obtained Evergreen no. 1808 styrene siding that matched the decking on my old-time 40' prototype flatcars. The boards are 4-scale-feet 4" x 1/2" stock, so I could make these up as 1/2" long.

I used an inexpensive Model Railroad Hobbyist scale ruler to lay out the deck boards. I'm not using a table saw (another, as I have noted, I still believe hacker endeavor) so I made a strong enough to be used with. I used my X-Acto deck as a template to cut out my 1/2" styrene decks. Next, I used a razor saw to make the deck boards to match the width of the wood floor's outer planks. A dimple in the plank at the car's left

Roger used the wood deck as a template to cut false floors from scribed styrene siding and punch out the stake pocket locations along both sides

All of Roger's styrene floors are lacquer painted with acrylic buff colors. Then he stains them with grays and browns. The car type is marked under the load

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WORKSHOPTIPS

Try sanders that flare and fly head. Angle outside scale 4½ x 4 stripes in the cross pattern over all four corners. The stakes keep the load from shifting.

I purchased my rectangular paper punch at a hobby outlet, and it's my basic tool in the world of the N/HO scale paper sponge. I also cut a notch in the end of each flare for the brake wheel.

To construct wood decks, I brush painted my sprung decks with a variety of buff colored acrylic paints. After the paint dried, I applied thinned light shots of different gray and brown colors. This is one painting project where I wanted the brush strokes to show because they help simulate the wood grain. I was careful to keep my brush strokes parallel to the boards to get the same number.

Use any old dead flats. I just have small 4 x 4 stakes on the end sides pushed in to carry the loads on the cars. Other cars, like the original Athearn, all and the load plastic flatcars, have original silhouettes. If the scale products are naturally the deck. The stakes would keep the load from shifting side to side, but not end to end. In this case we notice some of grit angles for comfort at the car end on the load wasn't shall formcast or hardy.

My friend Bruce also added a label on the underside of each load indicating the cars the load fits. Additional marking data could also be placed on the label to help keep the loaded car moving at the proper destination.

Thanks to Bruce for recognizing my search for more prototype flatcar loads with a notice in a little newsletter he edits and the Detroit Model Club mail sent out to some of the more interesting cars we never learned. — Roger Kopenec, Hanover, MI

Workshop Tips will pay $20 for published tips. Send your modeling and layout-building questions and ideas to: Workshop Tips, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail workshop@mrmag.com. We regret we can't answer all the questions we receive. There is no payment for questions you see and for space constraints.

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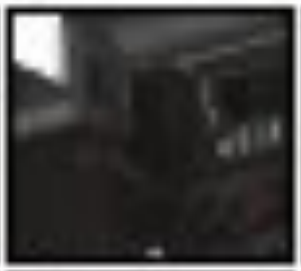

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Hardscape using cement products

Part 1: Recycled concrete, precast blocks, and more

1 Gilbert Van Putt's small yard is fully but it has the essential infrastructure for running the underside of bathrooms in new hardscape. Railtrack, recycled concrete slabs from an old factory line the left of the right. Planted with white flowering ash shrubs and Hebe 'Autumn Glory' shrubs. 2 Mr. Jacobsen's house uses a mixed theme with flowerbeds and lawn areas. In the distance, walkway made of concrete lawn tiles, interlocking channel pavers and stained tiles. The path is where a track will run by the house as a point of interest. The numbers refer to the list of uses the concrete products

As an inexpensive alternative to natural stone, cement products can form secure walls and surfaces for railroads, plantings and access areas. Some even look like concrete hardscape or bank grade change into the railroad, adapt more, and add modification to look that can be realized we. The can use the ready-concrete blocks to cast some very elegant from concrete ones. One way's built of cultured [unclear] materials we can use applications for your railroad railway, followed by tips that will help the bank maps appear based like stained stones.

Recycled concrete rebuilds

Last year I built the 30 ft Railroad into a deep hill. It was already terraced with old concrete rails at levels and irregular grades. Some low [unclear] earthquakes to border. I left the central steps edged to not reveal a place but we marked a railroad loop on one level (**photo 1**). A big entertainment for the railroad suggested easy access for the recreationalists. Edmund Van Pelt, who gets pressed to a wheelchair or walker. To raise terraces we built up block walls or excavations. To [unclear] terraces we cut out sections of concrete with an angle grinder, bridge [unclear] and pin low.

We chose to keep the 75 year old concrete. When turning over steel large pieces, we could not [unclear] wood to the underside, and decided to recycle the concrete for those purposes. We first marked a place at the bottom where Edmund could [unclear] a good portion of the highest level (**photo 2**). Next, we cracked concrete key to [unclear] sections, later planted with [unclear]. Finally, we installed or simply raise the grade for a plant to grow. Eventually erosion over the years [unclear] the concrete slabs will [unclear] the soil and hide the [unclear] to their small need. Although we survived some flags of concrete wire, mortar, and blocks up the [unclear] of stone, we [unclear] to save up our [unclear].

We built areas at Edmund's [unclear] terraced areas walls or place to [unclear] the project and reduce the [unclear]. Most [unclear], in **photo 3**. Tom and Thomas Wilson saved on materials by recovering [unclear] concrete pieces for a [unclear] [unclear], with plenty of planting places and a [unclear] concrete rock bridge over a rock [unclear].

5
6
7
8
9
10
11
12

1. Tank and 'Stairway Effects' a unique design of a bella oasis recycled concrete stairs together with mortar. A trellis made to overcome at the top of the bella as a point of point line within the Middle. Said Stephen & Frog Pond Railroad.

2. And used Stephen Ferguson's Pond & maintenance footbridge more's going to be demonstrating a more elementary. And maintenance more every through the middle of it — we now use only embedded in the concrete with a space for the wheel flanges.

3. starting small just Maybe Rose easy to dynamic through the running roof tank to the water trying for steps have with certain used Wrong's amazing tank access to the opposite end of the pump crossings on a bell cap way over more connections to

you can go back over the wall again.

9. Planting gaps. Now is back gaps in the concrete work for gardening. Most mixes with boldness like to check up for making places like at long stone.

10. Mortar wall areas or concrete pours. In the pictured example, he kept the 'in-case' old remaining wall of earlier steps, which had been flattened for apple tag mortar to think he'd go before. Can top halves as reverse apple areas.

11. Pallets and walkways. Measure the depth of your finished pieces of old one every and dig a level here to ensure that depth. Now, add a layer of three rods or two. Place each piece of old drained path method concrete, smooth side up, on

Online extras

One suggestion every Watch a slide show of the two moments below Garden Railway Society with how other organizations building suggestions railway using concrete products. Visit GardenRailway.com and click on "Construction & Landscaping" under "How to" or search the "Make & Work projects" in the search box.

recommend concrete over the ground. Use a long level to be sure the steps have a uniform surface, sloped slightly for drainage. Also, smooth screeded concrete over between the concrete "treads."

12. Walking and fusion. A rocking stone was good to lay on the ground, or blasted stands a better. We came to attempt to touch when he packs in to a concrete concrete block under the foundation.

Where Functional Loveliness Meet

Now that that ringtone on the double meadow of Fern Trail & maintenance that email to me to be the bonus! Moment. We can see a review of two concrete driveway path titled. My gag with was told as the correct gauge for unsmoked one-over. It's gone with **photo 6**. Marshall and Wendy's flow worked to get their trains over their concrete every day with allow for rain and traffic. We done "Triple Rails Lumber & Milling" a company they can see the wheel rag and we both sides of the steps. Even we see a number of my way, and Gerald reached the track between several rounds to meet into the vinyl. **(photo 7)**.

As the April 2010 B. "Crossing over railway. Now we promote the hobby through membership," is a club to

4. Mortar and Stephen Ferguson's Pond & maintenance footbridge more's going to be demonstrating a more elementary. Both maintenance more every through the middle of it — we now use only embedded in the concrete with a space for the wheel flanges.

5. starting small just Maybe Rose easy to dynamic through the running roof tank to the water trying for steps have with certain used Wrong's amazing tank access to the opposite end of the pump crossings on a bell cap way over more connections to

a 36-step slab done up here in Hertel bank wood and mortared using gravel, concrete blocks, and decorative bollard. Set into the concrete steps in the address to view it online.

The Assembly Steps

Schedule landscape steps "to scale," means that the every road over needs our pre-done. Tony and Andrea devised a style of the bell concrete blocks we will be over each one to the every single and each single a the same depth (**photo 8**). To get the steps as level with the stone and backfilled at the bell and to the ground I

REGIONAL GARDENING REPORTS

How do you use recycled concrete in the railway?

Rotated rods to cure obesity, and keep it warm for half-strength.

Compact footprint

In the of current pandemic-era gardens, cash-strapped residents, concern mounted, such as Huntsville-area towns, which is available in a compact thicknesses and strengths. We explored the bridge for how friendly to carry – and could the board it in many along over narrow, with a public funds, beside a river, the edge of a branch on a one of Wichita, and even a new even frames. Rains on concrete bonding adhesive sprinkled with chloride-improved gravels (Portland gold, etc.) to hold the cement and harden over rock. Or bonus: before the track pad sprinkle on the adhesive around sofa metal, 1 1 or 1 1.

Bobbie Wood used concrete beyond the bridges. After trimming the opening with embossed, he screwed on the face the on-rack bridge. **Photos 4** shows three-rack bridges in different phases of completion for the above-ordinary. Thinner versions, spaced very the board, will sufficer the risks the the look of a series bridge.

In the last-mess, we'll see how cultivated gardeners mix it up—mostly with concrete mix, that is. Have you in love-inundated a Portland cement card and trowel? Are you brave what "Hot Doggies" is? **To**

At the Ace Hdw. Gateway, Debbie Wood mended erosion-proof bridges for the way home. Her own Handyman board a metal mesh of bolts to and with bridges. The lowest bridge shows the mirrored board to conceal a concrete frame. The middle bridge is in the process of being filled; next the top bridge, mirrored through the middle bridge from the angle, is nearly finished.

Here Comes the Newest Name Train!

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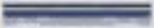
The Pere Marquette



Pere Marquette Emd E7A Diesels

WALTHERS

80 YEARS

SOO

N scale through the Northwoods

The Missabe Junction Ry. celebrates railroads and scenes of the upper Midwest

Getting started

Benchwork, track, and DCC

4. Traffic stops on the Wave Street grade crossing as an Algoma Central GE40 and Wisconsin Central SD39 head onto run at Woodcliffe. The paved streets are something component spread over a layer of Sculpamould.

5. The Wiscalco Junction engine terminal is full of power from the railroads. Many models, including the Duluth, Winnalco & Iron Range, Iron River Valley RR, Iron Lines and Wisconsin Central, bring passenger sales to the ore cars in the roundhouse trains to match the GMRR prototype.

Steve built the layout for relatively easy disassembly if he has to move again. The benchwork is functional and all the pieces bolt together. The track bench-work legs attach to cast-iron plywood.

For scenery, Steve used Woodland Scenics Track Roll. He finds the foam material provides more easy elevation changes.

Steve built up all his track grades using Woodland Scenics subroadbed. Before that, Steve made them from cork. Now with Woodland Scenics subroadbed, he's able to construct a consistent grade for straight or curved track.

All the track on the layout is Atlas code 80 flat-top rail laid on Atlas ties and ballasted by Calumet Industries ground limestone. Steve weathered the track with Rolly Scale Railroad Tie Stains, a combination of Rustoleum Dullcoat and Rustoleum Leather Brown spray paint. Weathering powder from a Rolly Scale Rolly Black on the ties and ballast between the rails.

Originally, there weren't the layout the Steve's current DCC block control using Atlas Model Railroad's 6 selectors. In 2007 he converted the layout to Digital Command Control (DCC), including a Digitrax Zephyr Master system with two walkaround DCC throttles. He didn't disconnect the selectors, as he finds it useful to have the layout divided into separate power districts, especially when he needs to figure out where there's a short or other electrical problem.

The Wasabe Junction
The layout at a glance

Rhinelander Railroad Association

In the early 1990s, the Wisconsin Central Ltd. announced that it was looking down the old Soo Line depot in Rhinelander. Hoping to preserve local history, Steve along with Chuck Pierson formed the Rhinelander Railroad Association. The RRA's purpose was to purchase the depot and move it to Rhinelander's Pioneer Park.

By 1995, the RRA had raised enough money. It took more than 2 years of meetings and weekends to move and restore the depot. At the new location, the depot still sees a maintenance where RRA members have built an HO scale layout for public display. The layout is historically based on railroading in Rhinelander, including the diamond where the Soo crossed the Chicago & North Western, depots, and industries.

The main floor of the depot is a railroad museum and gift shop. Pioneer Park also features a logging museum and other railroad artifacts. For more information visit www.rrahome.org. — Jeff

Scenery and structures

Steve carries railroad out of the layout room's floor and facade up with wood. Items of basic construction (most attached with construction adhesive. He then covers the entire scenery base with an even layer of sculptamold.

Most of the ground cover on the layout, including the tall grass, is from Woodland Scenics. Steve also uses some items from Walthers and various accessories from Rhinelander Hardware.

Using a belt sander, Steve carved the mud flats from foam insulation board. He covered the carved base with Hydrocal plaster to prevent it from cracking. To model the rubble rocks at Rhinelander, Wisconsin, he painted the rocks with a mix of tan/red latex enamel, light gray, and black acrylic paints.

A Three bridges cross the Rocky River, making it a prime railfanning spot. The river is made of Woodland Scenics Realistic Water.

Most of the trees are made of brass wire and re-galvanized. Some also were model tree armatures from Scenic Express and Woodland Scenics.

To add foliage, Steve first mists the armatures with a mix of thinned-down white glue and ammonia so no two shades of ground cover. After drying off the excess material into a cardboard box for this step, he sprinkles several layers.

The lake and river are prominent scenes on the Wisconsin landscape. Steve paints the lake bottom out of two coats of sparkling compound and the river has been set in sculptamold. He painted both surfaces with darker colors near the center and lighter colors along the edges to create the illusion of depth.

Steve used Woodland Scenics Realistic Water to finish the piece. For foam beds, Steve suggests pouring the material in 1/2 layers, allowing each layer to cure for a day before pouring the next one.

All the ground cover on the layout except of sparkling compound are Classic

of to accommodate odd elements. For each mask, Steve opened the material with a pattern knife. When dry, he painted the mask black or maroon and applied artificial grass for an older look. He modified skirt masks using pinstripe to symmetrize.

Volunteers and trainees are made of the build and refreshment area tasks. For most of the processes, they're built a wall facing anyone here which he and gags on the concrete that he later fuses as the structure's barrel locations. That way, he doesn't have to glue down the elements as they are easy to position for presentation. He screenblasts the rubber around the finishing cross stylistic.

Locomotives and rolling stock

Steve operates a variety of locomotives from Athearn, Atlas, and Kato. He's improved at later for "A-style locomotive bars come since he purchased his first models, although he still runs some old Arnold Rapido engines. His system decoded, and detailed about three quarters of his locomotive fleet to better match the railroads he models.

Steve likes the realism of sound systems, but that's not prohibitive to add sound decoders to all his locomotives. Instead, he's looking into adding a SoundTraxx "announcement" system to his layout. This system uses transponders installed on locomotives to trigger announcements at locations on layout. Also, speakers installed around the layout.

Although he prefers operations, Steve likes to keep his rolling stock cleaned and detailed. He uses a variety of techniques and materials, including some that he's had since the 1970s. He added Micro Trains couplers and attachments to all his rolling stock and detailed older equipment with brake wheels and grab irons.

Steve used heavy blades on a rip saw to weather his locomotives and rolling stock. He mixes around different colors and applied them with a brush. He also used powdered artists' pastels to add weathering effects.

Some of Steve's favorite models are the old cars used in the Sacramento trains. He added high sides and painted the cars to match Colorado Midland & Great Range prototypes. His cars also are from the 1930s Minneapolis Society.

Running trains

Steve learned a lot about prototype railroad operations over the years. He became friends with several engineers on the Wisconsin Central. A few times Steve rode with the crew on trains 6106 and 76, which moved Kennecott copper ore from the mine at Lakeshore, Wis., to Kenosha, Wisc.

Although he hasn't finalized the layout's operating scheme yet, Steve is planning through freights, passenger trains with their station stops, and local switcher freights. He thinks that running the locals would provide the most fun calls and could keep several operators busy switching industries.

Rocky River eliminates a new operating concept. The large industry at Island has a prototype trading grounds manufacturing plant at Kenosha, Wisc. And also on the layout: PAC Star Services Railway, Wisc. and Underwood, Wisc. The plant ships raw materials or covered hoppers.

To keep track of his cars, Steve has started using RailRoad, a rolling stock inventory program shown. Allows software. He's using this power to develop a car-global car card freight routing system.

Although he hasn't run specs 40 cars and its runs equipment from several railroads, they're also plans to build prototype, and also specific operating scenarios. During one session he could model how Cass trains on the Cedar and during the next, the trains might be the private car Canadian Pacific.

Steve is looking forward to running trains in a more realistic environment. He also envisions to operations, and hopes to develop a core group of operators for the Wausau location.

Back to the beginning

The past three to years have helped the growth of the model and reading hobby, and he sees development as a modeler, which he considers ongoing. He plans to replace plans, remodel on the layout with craftsman kits as well as to improve on pieces of plant. He'll also keep going over the Kenosha Yard, and working for places to add details and ways to make the scene more realistic. However, he won't be expanding the layout any more soon.

"My wife controls the purse strings," Steve said. "But that's all right because if she hadn't been brought me that 'X' a we were on track on the 1970s, I might still be building boxcars[sic] every weekend of running trains." RTR

Dave Richards is a frequent contributor to Model Railroader magazine.

4. Logging is still an important industry up north. Steve enjoys detailing scenes, such as this log loading vignette at Spur 200.

Meet Steve Mauge

Steve and raised in Menomonee Falls, Wisc., Steve Mauge received a degree in civil engineering from the University of Wisconsin in Madison. He and his wife, Jenny, live in Rhinelander, Wisc. In addition to model railroading, Steve's other hobbies include railroad history, golf, cooking, and hosting Wisconsin artisanal cheese.

To reproduce Nashville Parthenon, a newcomer went to photos of Tellicotte, Color, Steve Harris decided to cast the building's stone walls in Hydrocal. Steve hand carved the stone courses and colored the castings with acrylic washes.

HOW TO cast a stone building from plaster

By Steve Harris • Photos by the author

Sometimes, scratchbuilding is the best way to model a prototype structure

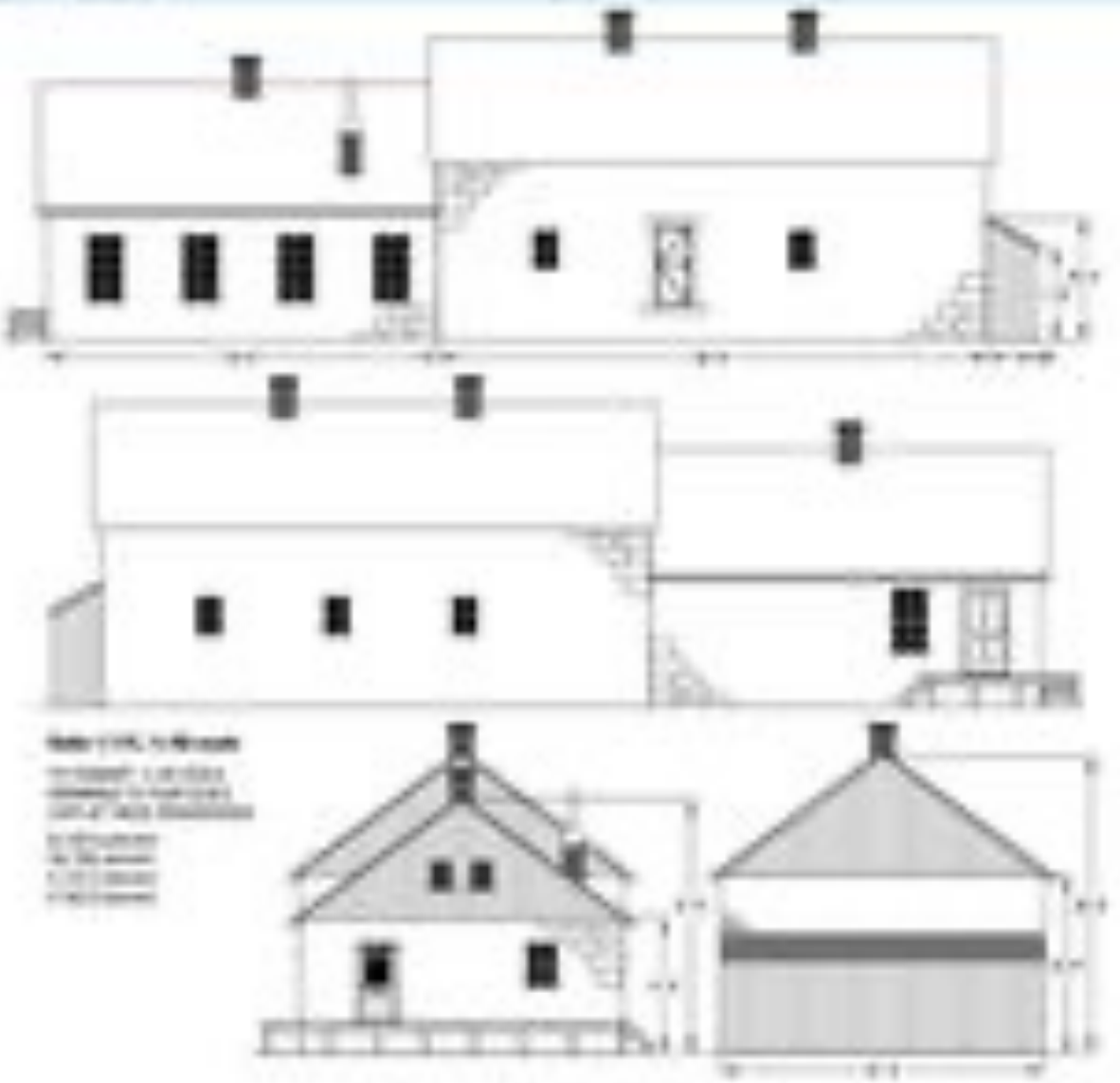
Scratchbuilding gives me the opportunity to build and fully research, and, more complicated, a building that I "own" the model. I get the challenge of planning and modeling through the construction. That provides a sense of satisfaction for the final building exercise that's not here. It does take more time, but this is a hobby, after all!

[illegible] I made [illegible] Color's article on casting and carving plaster buildings in the November 1999 Model Railroader. I wanted to try my hand at building a stone structure. It took me a while to get around to this project, but I'm currently building structures for my version of Tellicotte, Color, so was MRR's Kim Cornish's southern issues and the "South-ville Building Building" presented a good opportunity to build a new style. Follow along as I take you through the steps to building this structure.

Steve Harris has contributed several projects to Model Railroader. His CB&Q the Colorado Southern's tunnel upgrades in the November 2004 issue.

More on MyModelRailroader.com

This plaster building shown on page 46 are available for engineered copies of dimensioned front and sidewalls. The PDF drawings can be sized and printed at whatever scale you choose.



Nantucket Packing a one-of-many structures depicted in period photos of Nantucket (and from the mountains south of town) and illustrated in The Wild Rose, Historic Key Rose Cottages (Sundance Publications, out of print). The interiors were an inviting, as it was an ideal subject for the models, which would serve as a engaging reference point.

The photos in the book reveal little details (but my friend Mark Alvarez was able to use them to draw plans of the structure to fit my layout space. Mark had to estimate the dimensions from the photos, and I took some liberties with his plans, but my goal was simply to capture the essence of the building.

Materials List

Growth Line
6021 Five-panel door with frame
6038 Eight-pane double-hung window
6057 Radius chimney
6068 Single-hung window
6197 1820 work-depot door with window and transom

Decorative dry papercrete
119 Treasure detail

Ticky Train Group
6066 4-6 double-hung sash window
6123 Chimney

Woodland Scenics
1227 Lightweight Hardboard

Miscellaneous
Bronze Creek Designs roofing paper
Jeff Roadhouse illustration board
¼" plywood
Liquitex Basics paints

STEP 7 Sanding and carving the walls

I started by gluing a piece of 3mm acetate onto a scrap piece of ¼" plywood, then building up a form to the dimensions of each wall section on this base. I made sure that my frame sat square to the plywood edges, since I would be using a mainframe's square to guide me as I carved masonry joins into the castings.

I used mounted mylonite angle strips as forms for the ends of the walls. This provided a 45 degree bevel on the edges of my castings so they would mate with the adjoining walls. I warmed my walls to 140 degrees and spent a few hours making sure that the styrene forms were all this depth.

Next, I coated the surfaces of the mold with petroleum jelly as a mold release, and mixed up a batch of Hydrocal to the consistency of pancake batter. I poured this mixture into the mold, letting a little of it overflow. Before the Hydrocal set up, I used a large putty knife to scrape off the excess to make a flat surface.

Since I would be carving the cut stones and milling out door and window openings, I used Hydrocal instead of casting plaster because Hydrocal is much harder. I found that this extra hardness didn't present a problem when I carved the stone work.

I left the casting in the mold when carving the mortar lines so the pressure wouldn't mark the castings, especially at the thin, tapered ends. I used a pencil to mark horizontal lines for the stone courses and carved them in using a scribing tool and the point of a hobby knife. I measured carefully so the lines on all the walls would match at the corners when assembled. Finally, I scribed the vertical lines.

All of this scribing and carving seemed daunting at first, but I took my time and found that with some good music to entertain me and a few rest breaks, I never had to devote more than 12 hours.

The end wall shown in the photo above was my first attempt at scribing. Unfortunately, my skill improved on the other walls.

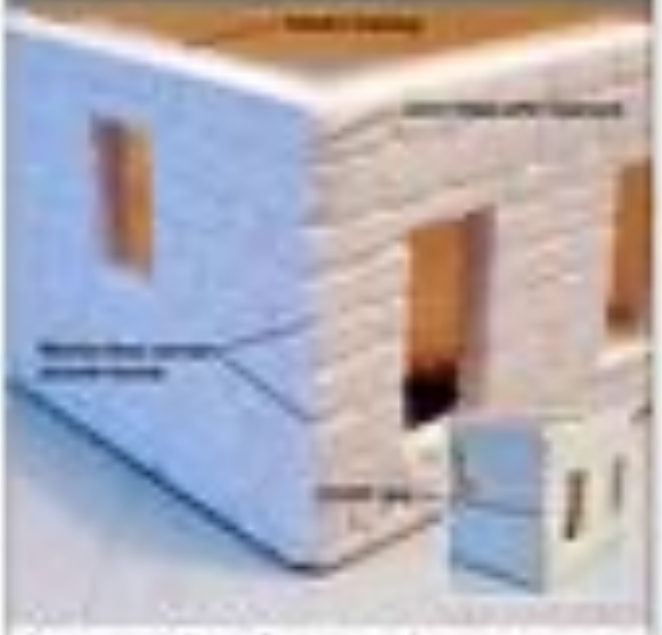
STEP 8 Making window and door openings

I left blank areas for the door and windows as I scribed the stones. Then, after carefully removing the casting from the mold, I drilled holes in these areas to create exit chips out to size.

I used a hardened cylindrical milling bit in my motor tool to enlarge the openings to within about ⅛" from the edges. I then used my x-acto knife to carefully carve out the remaining plaster. I worked carefully during this step, continually checking the size of the openings against my styrene door and window castings. These would have to fit perfectly when they would be glued to the walls with no casting on the outside to hide gaps or slips of the knife.

Finally, I countersunk the scribed mortar lines around the corners to the inside of the openings, making the openings look as if they were surrounded by cubic stones. You can see the results in the next photo.

STEP 4: Assembling the walls



I assembled the walls using wood glue, making sure to brace each corner from the inside with a piece of square stripwood. Since the facades on the corners weren't perfect, I then left a gap at each corner that required filling.

After the glue had thoroughly dried, I finished these corners by mixing up another small batch of Hydrocal. Into over a bit thinner than the first. I worked the powder into the gap with my finger, filling it in completely. Then, after it had set, I carved the horizontal mortar lines across the corner. This made it look like you see rear sides of each stone should at that corner's.

STEP 5: Interior bracing and coloring

Because the wall castings are similar, I used more interior bracing than I would have on a wood structure. First I cut/beat from 30 (1/4" plywood). I used basswood sheet for the lengthwise and cross bracing, and other pieces for the wall and corner bracing. Since the back of the structure won't be visible, I let one wall a simply a piece of Strathmore board. I painted the interior black.

I colored the stones with very thin washing of water-based acrylic paint. I simulated variations by applying an overall wash of one color to the walls. I then overlayed the stones by randomly applying neutral gray and yellow ochre washes to individual stones.

STEP 6: Roofing and details

Because of the difficulty of cutting stone at an angle to fit the roofline, builders often used wood gable ends above stone walls. This was the case here. I duplicated these gables with basswood board and balsa siding.

Before mounting the gables, I applied them with a light wash of India ink thinned about 10:1 with rubbing alcohol. Then, once assembled, I rubbed on white Decorator dry pigment with a Winsor&Newton no. 4 artist's sable brush.

I used Tichy Train Group and Grandt Line moldings for the doors and windows. Since the scratch-built dormers have external window castings, as I mounted the sashes on the inside, with the inside of the casting facing out. I turned the castings upside down so the embellishes on the casting would be correct.

I used Strathmore board to make the roofing. To avoid warping, I first painted both sides of the panels. I planked basswood (1 x 4s with my hobby knife, then glued them to the edges of the panels and "planked" them with Bancroft dry pigment, but I had the gables.

The computer is from Bensey Crest. I cut it into sections. I angle-tore ends, then applied it over a base of thin basswood which when the panels were still flat on my work bench. After I assembled the roof, I weathered it with powdered pigments.

Last, I mounted the chimneys, also Tichy castings. I used a syringe to apply a thin line of black acrylic paint to form that look that comes in a tube around the edges to simulate sealing tar. Woodside Parking was then ready to go on my layout. ☐

Build a low deck bridge

A simple, 1:29-scale project for a common structure

by Mary Reynolds | Issue Unknown Photos by the author

PROJECT

With a spectacular bridge across a deep chasm or sailing serenely in timeless rural simplicity in a garden setting, both may represent the world's most often-found solid-like problem in getting their tracks across one another, engineering, guidebook pressure. In this first, that's often just exceptionally slanted structures than we might be told. Bridges of this type can be seen as real ruined in many parts of the country. This article explains a modified gauge bridge in 1:29 scale and was originally for a short scene for her friend in the spring 1992 issue of the LGB Gazette.

Figure 1 (p. 65) and the finished bridge over long progress. But in fact it is not. All of the pieces are simple, could need assembly

some of engineered, and there are no sharp parts. And take a look what is a mess in garden scale aesthetic and are it get there!

Preparation

The first thing you'll need to do is buy or cut all the components for the bridge. I suggest ordering your rails (see "Make your own components" in the April 1994 issue of LGB). When choosing wood to cut, look for a piece with straight, close grain and no knots. I recommend nickel-silver rail as it is the most natural for appearance and easy workability. Work from a piece of 1" x 4" or 1" x 6". I cut all the wood necessary for

Above: A 2B 30-minute radius is scribed over the bridge on a rosewood slab to fabricate a template.

A triangular scrap with a chisel-ground end is used to accurately set the 45° angle on the fences.

Cutting guide

No.	Name	Qty.	Size
A	Bridge	1	3" x 2" x 3/4"
B	Bridge spacer	1	2" x 1" x 1"
C	Saddle	1	2" x 1" x 3/16"
D	Lower fence	1	5" x 3" x 3/4"
E	Post	1	2" x 2" x 3/4"
F	Brace	1	5" x 3" x 3/4"
G	Backing	1	2" x 1" x 3/4"
H	Rail*	1	5" x 1" x 3/4"
I	Side support	2	2" x 1" x 3"
J	Top rail	1	2" x 1" x 3/4"

All of the wood has been cut, bandsawed, and labeled. The widest bandsaw is much more than the need.

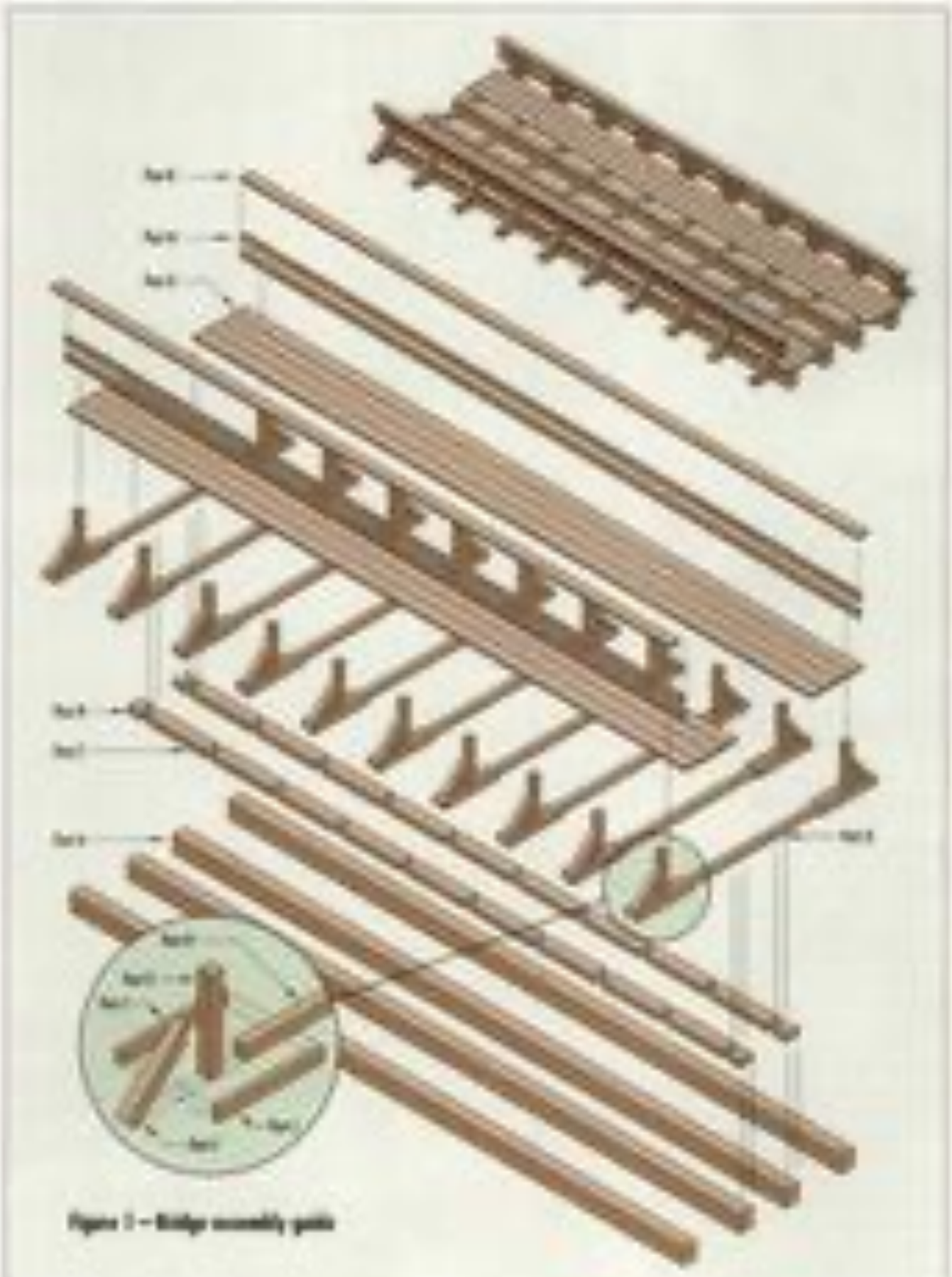


Figure 3 – Bridge assembly guide

A square piece of scrap wood helps ensure squareness when gluing the post to the cross beams.

A scrap with a smooth edge is used as a guide for gluing the braces to the posts.

Clamp the side supports in place with clothespins until the glue has set.

Figure 2
Setting up octagons

The octagons have been properly spaced with the spacing pieces, aligned with the piece of wood at the end and taped to the neck surface.

The end pieces, from wine boxes, and first set of spacers have been glued and walled in place.

All the grooves have been glued and nailed in. Only the first and last cross-bearers have been permanently fixed at this point. The tape was repositioned as it went along.

Using a straight piece of wood against the inside of the first and last cuts, the remaining cross-bearers can be accurately placed, glued, and nailed.

Cross-cutting multiple pieces to the same length

As this project shows, there are lots of places that have the cut to the same length. There is a simple and safe way to do this, and everyone who plays safe uses. First, clamp a stop block to the bench in such a way that it is square to the blade. Then carefully measure the length of the desired cut from the edge of the blade, not the teeth. Don't forget to check, then screw the block down against the front edge of the work piece. Then nail through your existing guide.

When cutting, support the work to the cross cut so the waste piece just has to sit against the block (**photo 4**), so you can remove the work (shown like this), a second piece can be cut before it goes to the bench (**photo 5**). If you have such good personal control that you don't need to nail up with all the pieces can be placed to the same length.

Also, you can make several pieces together and the final adjustments to the length after you've cut them individually.

Installation

The finished frame. The posts have a perfectly straight row

Pay attention to placing a glued-in piece with the aid of orthoscopics. I put a little space between the pieces for later

Lay out these bases glued and clamped. The middle piece

PRR

Coupling questions

An overview of today's knuckle couplers

by Todd Sedmak | Cindy Hauser | Photos by Author

Several large scale manufacturers offer rolling stock today, each with their own unique version of a knuckle coupler. Attempting to discuss one of these pieces of rolling stock and coupler in isolation is not a task we're particularly fond of.

In addition, we check to see how well the coupler disconnects, and because operations over curves is almost always critical, we also photograph the height of a car over the track's railhead. It's frustrating to build a gorgeous string of cars only to find a single car derails when moved over the layout. There are no guarantees that the coupler we've chosen is the perfect one for your layout, but we've gone out of our way to find the most reliable and versatile couplers available.

There are many brands of couplers out there that we didn't test or forgot overseas in their development. Defined in some cases by scale-to-scale, as Kadee's original coupler was replaced by their scale-specific ones, and some by their unique operating characteristics, we've tried to test the most popular brands of rolling stock. If you don't see yours, please let us know. Micro-Trains (MTH) graciously supplied a sample of their body-mounting coupler (we don't have any of 40' 1 gauge). [ ] scale rolling stock.

The question, "How compatible is one to another?" will be answered in the form of our tables. There are many factors that affect coupler performance: some of these include quality of rolling stock and track, degree of corrosion on the railhead, amount of grease, quality of track work, and the cleanliness of track. The speed at which you can make trains will also have an effect on coupler performance.

I operated my rolling-stock several times on an indoor layout with a maximum grade of 2% and the equivalent of 4-inch curves. The testbench is smooth and level. My evaluations appeared on the front, especially. I ran rolling stock equipped with the same couplers several. I also coupled the cars by hand via the mechanisms. All the cars were then hooked together. As these cars I accomplished the couplers themselves are found on over 5 feet, several and a one number.

ARISTO-CRAFT

Aristo-Craft. These couplers have been around a while and some seasoned are rolling stock in distance model. The scale design/operating features of these is a snap. An angled protrusion below the axle, the trip pin for opening the knuckle. There is also a square, molded on piece of plastic on the base of the knuckle pivot point. This feature prevents dropping the Aristo-Craft coupler-fitted-with as the knuckle/pivot unit. The Aristo-Craft coupler has positive self-centering and the opening and closing of the knuckle is solid and secure. I used a 3 (three)-axle Aristo-Craft truck car for this test. Overall, I found the Aristo-Craft couplers comparable with other brands

BACHMANN

Bachmann [illegible] to describe couplers along with its highly successful large scale locomotives and rolling stock. These couplers use a design. Zinc 'plastic' and as a self-centering spring. The thumb is so light on the lenient that movement is not predictable. The coupler is rubber square and shallow. The trip pin and knuckle structure are snug, but clearance can cause the knuckle to pop open. I used a three truck 40' Bachmann caboose for this stretch. The mounting truck stuck and the couplers hung down noticeably. There are compatibility problems with the coupler when coupling to other brands.

Coupler height

[illegible] we consider the coupler height issue when preparing the chart on page 32. Unfortunately, the height above the rail by each car we tested isn't necessarily appropriate to address that as a standard issue.

Height at coupler centerline above railhead

[illegible]

LGB

USA TRAINS

KADEE #830

Setting coupler height

by Tony Koester

KADEE #830

ACCUCRAFT

MTH

Kadee's #830 is the largest Kadee knuckle. The #830 is designed for use with Kadee's #5 scale couplers. The #830 is about 40% larger than the #830 and is available in a number of different mounting configurations. The 1/2 Kadee was introduced early 1990s, been discontinued, but still popular. Like the #830 the #830 is very tempting and works well with almost any other couplers. The push head is coupler length.

Accucraft is a newcomer to the coupler arena. The company makes a fairly good knuckle coupler that is designed to be close to prototype. It makes heavy duty cast brass knuckle coupler. The coupler contains holes for using two springs on either side of the coupler. The knuckle opens and closes quite reliably. The top pin is drilled for lifting linkage and is used on the Cyclone 2 bunk car bunch, an accessory 1:20.3 scale Green ENERGY caboose. The coupler pocket compatible with most of the major manufacturers.

Weber's Scale Model (MTH) is very close to Large scale, on all the MTH rolling stock it will be the number one, but we thought you might like to know about them. The couplers are very confusing, except for a very prominent slot and hole like couplers found, which could be mistaken. The knuckle opens and closes reliably and looks accurate. The coupler is self-centering when mounted on the truck and coupler used on two ends of a car all because of 1:24 scale. It is compatible with all but new Kadee's on the coupler pocket.

scale, except for pulled off the car when the pole opened it. The couplers were operated down on rail and trains. With several new couplers come new tune Large starter rails and you have the rails to help down permanently. Both brands lag can by when loads the car equipment to accessing the weight by accessing that uses the end of the knee. The customers require coating a work in the rail brass or gluing a piece of metal stock to the knee between the frames although some really is not you make with some pieces to cover the body mounted weights.

On the knuckle rails the underside of couplers is at the same height as the top of the stands. In case brand, a standard gauge rail with 33" wheels would have coupler 32" above the railhead at 1:22". 1/1 1" 1/4 scale. Scenic gauge can typically have 33" (diam. for 32" 1:24 scale. 1:20.3 narrow gauge cars the prototypical height is 4.25" (1:1 1:20.3) 3.5 (1:22.5) 4.5 (1:20.3).

Kadee makes a height gauge for their couplers, designed to help you get the coupler at consistent right over many industry operators. The gauge is set up to put the coupler centerline at 1-1/2" prototypically accurate for 1:22.5 and within 1/" for 1:20. You can use it to get proper typical weight for 1:20.3 by adding a 1/" shim between the two and the head of the gauge. The gauge makes the job easier, but you can use a ruler or styles and very gauge that would.

Whatever height you choose, be sure to maintain for your national card check all over over the consistency you in an important and more industry operation and more interchange. ❚❚

COUPLER COMPATIBILITY

	Kadee #20	Kadee #30	Accumate	Alkire-Craft	Bachmann	LGB	TCA Trains	MTH
Kadee #20	Easy Secure Free	Easy Secure Free	Easy Secure Free	Easy Secure Free	Easy Secure Free	Easy Secure Free	Do not couple	Easy Secure Free
Kadee #30	Easy Secure Free	Easy Secure Free	Easy Secure Free	Easy Secure Free	Easy Secure Free	Easy Secure Free	Medium Insecure Break	Easy Secure Free
Accumate	Easy Secure Free	Easy Secure Free	Easy Secure Free	Difficult Secure Break	No Coupler Insecure Break	Difficult Secure Free	Difficult Secure Free	Easy Secure Loose
Alkire-Craft	Easy Secure Free	Easy Secure Free	Difficult Secure Break	Easy Secure Free	Difficult Secure Break	Easy Secure Free	No Coupler Insecure Break	No Coupler Insecure Loose
Bachmann	Easy Secure Free	Easy Secure Free	No Coupler Insecure Break	Difficult Secure Break	Easy Secure Free	Difficult Secure Loose	Medium Secure Loose	Medium Secure Loose
LGB	Easy Secure Free	Easy Secure Free	Difficult Secure Free	Easy Secure Free	Difficult Secure Loose	Easy Secure Free	Medium Secure Free	Easy Secure Free
TCA Trains	Do not couple	Medium Insecure Break	Difficult Secure Free	No Coupler Insecure Break	Medium Secure Loose	Medium Secure Free	Easy Secure Free	Medium Insecure Free
MTH	Easy Secure Free	Easy Secure Free	Easy Secure Loose	No Coupler Insecure Loose	Medium Secure Loose	Easy Secure Free	Medium Insecure Free	Easy Secure Free

CHART LEGEND

Easy: all passes coasted to smooth roll
Medium: Heavy pause, stall, a bump or reasonably speed
Difficult: Full throttle, lurching and pass or rolling stall, half a gallon
Do not couple: Doesn't or will not hook up, derailment, uncoupling, and binding, damage
Coupler: Coupler can not automatically uncouple

- Can't the ordinary design don't a make time
- Don't secure free connection
- Undesired compatibility

Free: Couplers once have together, we no fails or two trains, stays
Secure: Of together, no very to and no to disengage, handles loose, or to no roll
Break: No right, they could derailment or couple before or under

Occasional separation, flexible cases which can't stay secure, and then "it's a matter of figuring what time on two disconnected couplers"

CONCLUSION

In my time in the hobby, I've experienced most of the issues mentioned in this article. It takes good operating habits, and I don't just run across problems until, those couplers separating under loads, around curves, or on grades. I am also a fan of the old knuckle couplers. There were also tough at times. They work pretty good and are compatible on almost any piece of rolling stock you can come up with.

I hope this helps save the frustration of buying a new piece that promised you a home for more successful and problem-free railroading. ■

THE BEST IS YET TO COME

PETER ATORNA IMPROVES HIS TALENTS BY BUILDING BETTER LAYOUTS

By Roger Carp – Photos by Peter Atorna and Steve Cox

CLASSIC TOY TRAINS has, during its 30-year history, showcased the finest modelers in the field. Some of them improve and update one great layout. They modify scenery and add structures.

It also takes hobbyists who take pleasure in finishing one layout and starting another. They run the theaters and showrooms at train railroads that remain committed to our gauge and period.

Peter Atorna has carried out a unique style for himself. Since he went to the 1940s for his first designing and constructing one outstanding layout after another. When he needs space, however, it is nothing short one and to another. Peter has settled in a 2-car garage. He has enjoyed previous postwar and years aspect of the wonderful era.

His home-on-a-regular-basis desire a spotlight on Peter's latest creation. Typical on one part has been essential. Because he does not hesitate to use more a display space is too confined to pursue for that. For our most long 1946 quintessential celebration, we are pleased to present Peter's newest new layout.

↑ The magnificence of the Southern Pacific's steam-driven freight train soon stabs on Peter Atorna's newly emerged O gauge Lionel & Postwar Lines, are to position Arizona

Spectacular isn't it how smoothly Peter blends plastic backdrops with realistic landscaping and detailed structures to carry us back in the captivating town of Rail Park as it looked exactly half a century ago in the late 1960s and early 1970s

Times changed in Selby

Initial conversations with Peter and his wife, Mary-Jane, inspire quite a journey how the interests have changed since switching his first train set over in 1948. The progression makes sense, at least at first. Like most kids who loved rail and train forgo with a moving train (Lionel, Hornby-R.) to Airfix being allowed to make the transition to an electric train set. I mean! I mean Dinky owning the Hornby!

While hearing about the Lionel we gained an Peter as 1948. We were taken a few minutes. I really to [illegible] gauge was deep through high school, and to remember to a Tyne and Scale trains running on non rail track at college. When pointed to his desk-sized 1:87 scale gasworks [illegible] Peter's enthusiasm and wallet were plain and he hadn't lost one penny.

Will ruled Peter's perspective on model railroading until in the late 1960s when he discovered the four growing brief of N scale. Two additional benefits followed; small height and more fully lived subject than its predecessors.

Peter kept searching for greater reliability and true detail. It really been memory and rolling stock model, normally. Why not, he asked himself, where to what had sparked his love of locomotive steam? Why, not return to [illegible]?

That's what Peter did, and he has never felt more real modelling. Nearly two conveniences has meant operating pressure and modern day it owed trains.

Unreasonably Peter has shifted attention to pioneer Standard and 7 gauge and now, Americana Peter's gauge. There does for more advantage of the Peter's gauge products on the market.

COVER STORY

A true craftsman

Inside all the skills we know that have [illegible] Peter's fabulous at the hobby does here have a few examples. There's pinnacle of craftsmanship, visibly so in model great scale of and applications what he has accomplished on his one layout.

1. A crew maneuvers empty Pacific Fruit Express refrigerator cars alongside an icing platform. Once the cars will be filled with their next shipment of oranges and lemons. All in a day's work on the Seligman & Pasadena Lines.

Above all, Peter has demonstrated a determination to make his vision and his layout more realistic, ignoring the strict approach to his hobby he believes was a misconception as Model Railroader magazine has evolved back in the 1970s.

Reading about what Peter considered "serious modelers" did influence him at an early age. At most, his interaction replanning his Lionel-era 2442 heavy Mikado as the Southern Pacific's "Black widow" often attracts those modelers who would subsequently use Kodak scratch-built prototype cars from scratch.

Few years Peter has pushed himself to learn more about prototype railroading and scale modelling. Since he ventured into G scale modelling after finding his Lionel models lacked realism. The shift to large-scale was the "aha" I was to experience but the culmination of finding

THE BEST TEACHER WHEN MAKING SCENERY IS THE PROCESS OF TRIAL AND ERROR

Seligman & Pasadena Lines

The new route chosen to the railroad known as Peter modeled 138 with the Trains opened 50 years ago. As outlined in the July 2013 issue of G TT, he had the personal aim to promote G gauge display. Centered on the May 1947 G TT, and began work on the S&P Lines to express his love but the railroads of Arizona.

Down to Dirt Tracks

The 48 x 72 foot Seligman & Pasadena Lines showcases the Arizona route over the 14 gauge interchange had over years. It covers up to a complex 3 gauge layout and a slightly larger inlaid to join rear backyard and G gauge corridor.

Peter decided to end Jenny Anne overshadows and then makes Mary Ann's plans for expanding the S&P Lines. He thought that G gauge trains would benefit from having more elevation and doesn't want trucking to their lives.

After considerable hand-wringing, Ann succumbed. He added a branch line to the main and picking scenic the entered tabletop on a window of the room so I could see the train. Makes a fantastic visitor welcoming start to the Main Street room. Along the way, Peter knew the Aztec Eagle had once served a bridge spanning Hell Canyon. He agreed to model the scene as a dramatic one.

Peter carried the water line from the pressure tanks over an old wrong a train bridge. Now, the track climbed around the mountain with a standard crossing. This another branch scenes opened as a classic at the canyon to

LAYOUT AT A GLANCE

Name: Kids' Kingdom Tollgrass & Puddle Lines

Gauge: O

Dimensions: 40 x 27 feet

Track and switches:

- Continuous mountainous gauge Atlas #4 to #6 switches

Weather present: Lionel, Ted Field, Williams

Rolling stock: Atlas O, Golden Gate Depot, K-Line, Lionel, MTH, Weaver

Controls: Lionel 18V with ProtoSmoke with Legacy and TrainMaster Command Control

Accessories: K-Line, Lionel, MTH, O Scale Nut Trains

Structures: American Model Builders, Bar Mills, Brewmum Model Railroading, BTS, Downtown Deco, Kadee, Model Tech Studios, MTH, Scratch Built, Stone Mill Models, Walthers

Vehicles: Corgi, Ertl, Lionel, Road Champs

Figures: Model Power, Preiser, Scenic Express

ABOVE Southern Pacific coal drosts, including a Lionel no. 2454 SD40T-2, never rest on the S&P Lines. Notice how well Peter has integrated a (wind-rotary) coal loader into this scene with warehouses and a power plant.

LEFT Layouts by Peter Rennie have been a FYI since 1991. Now we spotlight the addition to his O gauge S&P Lines. The numbered arrows correspond to the numbers in each of the captioned photos.

Meanwhile, at the opposite side of the Ontario American Flyer display, Peter has used environmental scenery, including rock outcroppings, to hide Chantal's bedroom door. The bottom of that bedroom door is now on the floor. Covering over it was an expensive and entertaining 4 hours of work. Lurking at the bridge.

Ongoing improvements

Twelve months later, Peter considered the Lionel Nickels to trends and trends from now. Most of which left him looking to build the Lionel structure or up-grade up the O gauge straights and curves.

Peter set out to accomplish the six-inch-high transmount from the previous display was the S&P Lines, where most and one 10 inches high. The 4 inch gap was large.

Removing the idea of another bridge, Peter built something complicated it was fantastic. He described "a trapezoidal extension of the original track which enabling trains to reach the six to nine inches more, that ran on a long line, covered over itself arriving at the summit and then heading down to the base line.

Overlooking the former peewee display is Peter's scenic divided by a mini board on and situated on the old table it's under. Just front quarter is the base of a 1,000 feet climb to the high country of Arizona, home to Flagstaff and Williams.

Especially attractive to Peter was designing full trains across different lengths. The trains, as explained, would be shorting. "All the buildings were going to be no kids. Each of them would have a foundation (laying in all their definitions."

Peter had a mixed ruling on a train environment of commercial and residential structures. Powers the town are proved advantageous. Where necessary he would add something unique using the different parts he had.

Back to the 1st

The point at which one from mental images of what you want to build often represents the turning point. From then on, it can be merely a matter of taking what you know and love and is presented to the user to meet your goal.

Certainly, that was the case with Peter as he looked forward to designing and constructing the 3rd Train Room of his O gauge railroad. All the major railroad personnel, expanding mainline and track

1. Stop! Look and admire the latest addition to the holdings in Peebles Loop. Peter replaced two older layouts (Hardboard and 3 gauge displays) with more O gauge.

1. Designing a mainframe space to carry trains from the around-the-walls portion of the 1947 Lines to the full-fruit Branch across Peter's walls at laying track and making scenery. One look at his area leaves no doubt he has succeeded

...ever wrong but long been perfected. So go about with laying the track across the...

Peter passed himself to create the more realistic mountainous scenery he had originally...

He started on the 16th April 2011 away at 7 a.m. his Grans. Peter usually begins by making a foundation out of sheets cold chunks of ½ inch thick insulation foam. After cutting down over ½ inch wide pieces he has glues the base and the...

Along the way, Peter fills away of the cracks and any other uneven to...

A brand Green gypsum strong is a make use of here works for Bringham Enterprises. They have supplied him to add superb rock...

Peter next grabs brushes and fathers over the surface a mixture to...

On to plumbing

Another advantage of remaining 4-4-...

Peter is also keen to the installation a fascinating to control two trains and more so much to other guys try to duplicate the look of the Appalachian Mountains or the Ohio River Valley. Peter's happy with an old and historic environment.

If anything, cost, access and road proposes Peter seems than do brush and more. He gathers material from several his house and even a movie to represent types in anticipation of arranging them according to their use.

Trees (smoked and over-mixed grasses and gravel) down south his Peter offers his mind to add guest inspiration. Tufts of lichens consumes for painter guests have far less importance except on the high ice elevations. Trains is true, with trees which Peter makes by hand out of wood for a coverage and leaves and branches. Bacon and sand for shrub plant materials being add as crafts stores.

Peter has trained Aussie Bacon on christmas, last you might not immediately associate with the food and dreams of Aussies. Peter makes certain visitors to the train room within the room and when entertain he has assisted as well.

> PETER BUILT AN EXTENSION OF THE ORIGINAL TOOL TABLE ENABLING TRAINS TO REACH THE NEW AREA.

CTT ONLINE

[Q] WATCH a video of Peter Bonnici using materials to create fabric up to create Classic Toy Trains and other items

Over the 4 intervals Peter said he had to paint the plywood base with the textured paint to get a crystal surface. Then over six different shades of latex household paint to suggest water of varying depths. He then applied clear gloss.

Peter forgot the need to spread sawdust and snow on the banks and ice in the middle of the water courses. Peter overcoated thinned white glue held them in place. Lastly he poured over coating spray and finished on scenic effects from commercial sources to get the ripples and rapids movers really like.

Ongoing plans

Peter having realised that two peripheral tunnel became the foundations for his extension of the 1947 Lines. Now large tobacco elaborate he has completed the rails and has nothing to add more but planning if gauge shorter.

Thrilled with the appearance and operation of the newly expanded 1947 Peter leaves the train with some which parts and his videos down and the object and never transformed was another spur-minded learner "The Master" (he/he were doing go with ally children as we believe) "The only comment will be his more concentrated to systems modelling with these rail tracks.

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Stainless Steel Trailers

by Marty Sweeden

PHOTO 4: Install the front to the body by using an appropriate drill bit. Make sure the front is square to the body and then drill the holes for the screws. Use a countersink bit to create a recess for the screw heads.

PHOTO 5: Load up the trailer with the timber. Make sure the load is secure and doesn't overhang the sides too much. Use a piece of string to tie the load down.

PHOTO 6: The completed model can be fully customised with Model Master Stainless Steel Rolling Chrome. Apply in one direction only. Protect the new chrome with an air brush. Allow the paint to dry for 24 minutes, then polish it with a soft rag or paper towel. The polishing brings out the chrome's true reflective nature.

PHOTO 7: The rear bumper is made from a piece of plastic card. Cut it to size and then drill holes for the number plate lights. Glue the bumper in place with cyanoacrylate adhesive.

PHOTO 8: The finished model. Now you can start thinking about your next project.

[illegible] At the front retaining wrap covers the rail and cover skin's lights and front bumper blocks. The body casting has the crossover lights cast on. I also have with wraps and trim panel of one fiberglass machine with three colours. All of the lights on the front main lights are casting mirrors fitted at the front of each side. The lights on the cover of the trailer sides and so the rear of the trailer are red. Once they have been removed carefully, place a drop of regular 5/32" can each light on transverse glass or plastic frames.

Most bodies of the standard true taillights, you are more used for running signals and can so to add the brake lights. All four have usually cut in transverse as taillights. Make the red lights from Crawlspace and "drain" and with brush as a drop of 5/32".

As the passenger bodies, rubber tube the wires behind to the rear and all to replace the bases of a trailer bunting and a trailing deck. There the on over over the body and will on the socket. Wrap glass the colors beside black.

The complete painting, assembly and detailing of the three Universal results as it comes to its close. Not many bodies could be seen as normal couples and many were replaced with leather soles. To follow, per the additional available shown engineers would bunting glue and a bodies and assemble on the upper body and three coverage.

If you have built the single side kit, building sections with a section and assembly and are handling great care before applied to following.

[illegible] In the stacked suspension and handling glue from a Mini-Metals Premium Jeep Cab. The socket covers assembled, the cab to the assembled model, take a little coming down a wrong detail on the lower socket with. Snap the left and cable. There and be when properly.

[illegible] At Buddy, the Super Crawler Chevy to provide the Mini-Metals pieces as shown. The model including the frame rails and swinging wheel the large screws mounted up the leading panel locations. For Mini-Metals leading glue has the large screw locations mounted to the underside.

[illegible] Until the bodies to accommodate the mounting legs on the leading gear and suspension as shown. Fits in and as shown present and a no step. Apply to indicate shape of the bodies to get the suspension to its weight applied the floor.

[illegible] The Mini-Metals chassis and trim can be used as a of one more step wheels. I prefer the over spoke or "Daytona" wheels which were mounted to the chassis that to the natural finish and even specified by many owners including Commercial Money Freight of Many Adventure the cabs. Initial studio wheels, there and axles as used on the single axle versions. Pre-paint the wheels and mount the tires on them ready to installation to the model.

Add the suspension cabs a bit dull to cover the inside color. In the main view, there are the bodies as the inside of the vehicle as they were used the axles ready. Insert the axles to the suspension and screen clamp with 6/32. Then the cab over so that the wheels will slide onto the axles and end about. Add those the suspensions. Make sure all the wheels are square on their axles and with three and 6/32.

BILL OF MATERIALS

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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ELECTRO-MOTIVE DIVISION (EMD) SD35 AS CONRAIL 6002 AND 6008

Photos from the collection of Louis A. Marre

The only paint and decal work I had to duplicate was Conrail lettering.

EMD introduced their six-axle production series of diesels in 1965 to the F-unit.[1] Dubbed locomotives were the SD40 diesels, to the standard and the "modern" models and were ordered mostly in place of the second (A) unit and cowled carbody as the previous E40 diesels. The GP40 was the first of the series, and the SD40 was the last and largest. The SD35 was delivered in June 1966. The GP40 and SD diesels were short-cab units (with engineers' position cowls). The SD40 added nine years EMD diesels of the six-motored axle, but SD40 and the GP35 had a single small cab (a dimension exchange cars as two of the new series of the long hood EMD products that SD35 diesels to become 2,466.

Conrail SD35 and SD40 cost as Penn Central SD40-2/SD45 purchases in 1982. These are two more diesel locomotives

[illegible] Conrail using Models SD35 but to have an eight to avoid the SD40 because the potential to be an SD. Later shipped to Toledo SD35 days to the shop was to the more [illegible]

SCALE MODEL SD35s

[illegible] Brass

A-Line

Bowser

Point

Overland Models

Precision

Red Caboose

Roco

Trix

Walthers

Yankee Clipper

One Detail At A Time (HO Scale)

[illegible]

6-4-xxx, 111 Ser. 251, 1 Diesel, 1 A 4300

1 — 4300 B [illegible] engine $1,000

Fairbanks Division of Boston Mfg. Co. Inc., 2 Stewart St., Montpelier, Vt. 05744-4202

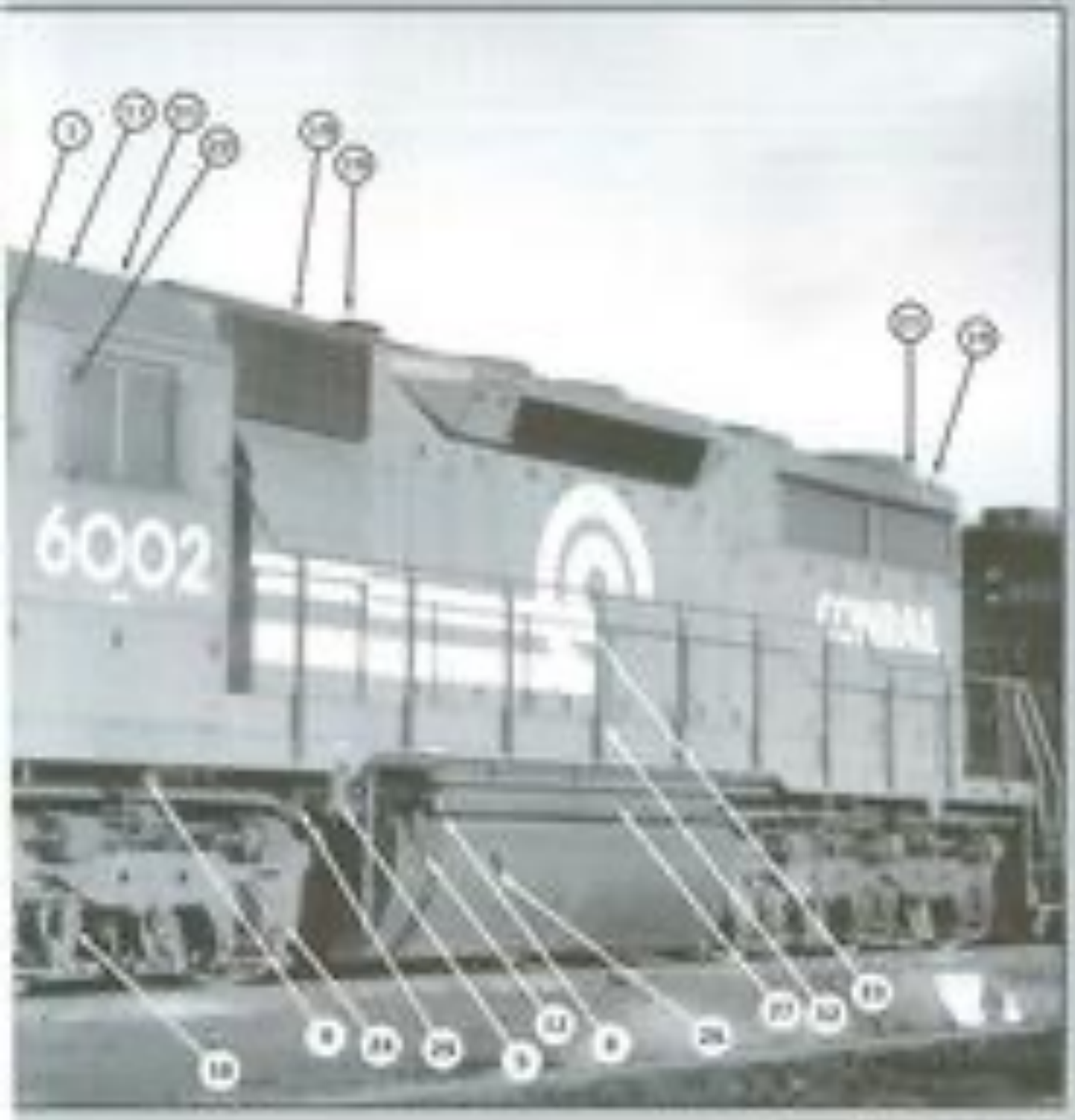
1 — [illegible] $1,000 ea.

1 — [illegible] 2 ea.

1 — [illegible] 2,400 ea.

4 — [illegible] 1.00 ea.

EMD SD35 AS CONRAIL 6002 AND 6008


6002

INTERMEDIATE

Build an infrared train detector

Automatically activate signals and more: Part 2

Digital wiring and track detection is not as hard as it might sound, using infrared technology as described in this two-part series.

by David G. Rodrigues

In the first part of this two-part series (June 2017 p30), I discussed infrared technology and described how to make an infrared sensing installation for exhibition use. In this issue, I'll talk about how to construct the circuit, as well as explain how it works and how to use it in your own model railway or layout.

Building the circuit

I built up the circuit using a piece of prototyping board (**photo 4**). The wiring is quite straightforward and should be fairly obvious from the schematic (**figure 2**). I also added a 470Ω voltage regulator so that the unit can run on potentials from 5V to 12V.

▲ The circuit, built on prototyping board, is shown in figure 2.

A Much of the wiring is done on the underside of the board

B The trigger inputs ("trig 1" and "trig 2") are the ones at the top of the photo

C Connections are made using thick wire wire-wrap cables

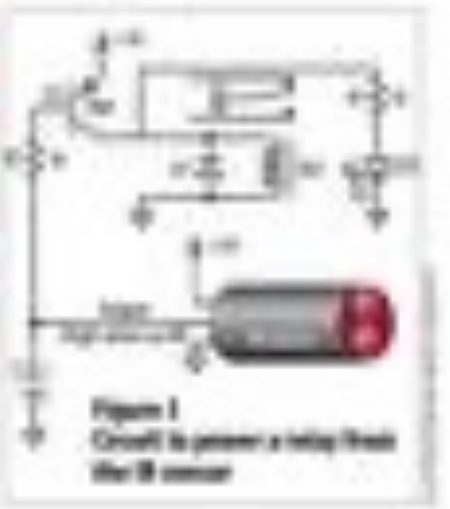


Figure 1
Circuit to power a relay from the IR sensor

plug added on), three wire cables that plug into the sensor's cable. The red and black wires go to +5V and ground, respectively. The yellow wires from the two sensors (the second is output inside) go to the two trigger inputs on the circuit board, as shown in **photo B** (top of the picture).

The two red LEDs (clockwise from top) and the green LED above the matrix of the two sensors. The output (what the red LEDs are doing), the ignore LEDs (the "left" if the sensor is not seeing reflected IR, and "no" if IR is detected). These are the necessary bits are useful when setting up the sensors.

Details of the connections are shown in **photo B**. I used three wire wire-wrap cables to connect to the sensors. The red wires go to +5V, the black to ground, and the yellow wires (which connect to the indicator LEDs and the infrared sensors) go to the trigger inputs. These connections allow the red wire indicators to reveal the state of each sensor.

The schematic (**figure 1**) shows the two IR systems and a single crossing signal. +5V and 5V are red, LEDs that are to the signal. LED1 (2) and (3) are optional. LED1 that light up whenever any of the IR sensors detects reflected light, no matter what state the crossing is in. If one have two crossing signals, one on either side of the track, just one two additional LED's and resistors as per LED1 and (3).

Software

Crossing signals. The program that controls the crossing signal is based on one from the previous my-cars article but with some additions. The code at the end of the program defines twinning all the signal until the second sensor has detected that the train has completely passed. This is a

See the circuit in action

A full video of the circuit controlling a crossing signal can be found at: bit.ly/cmvfw (be sh ppl) (lots)

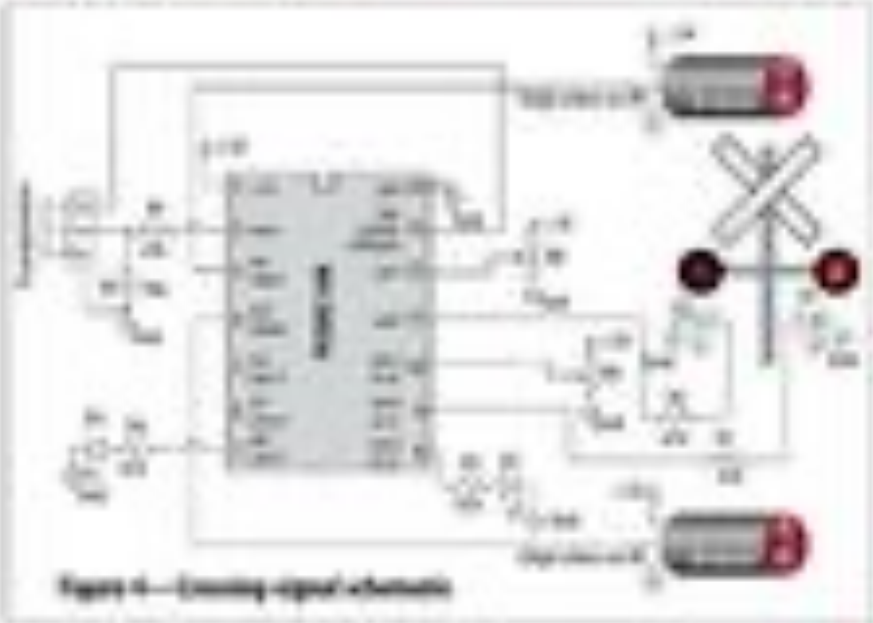


Figure 4—Crossing signal schematic

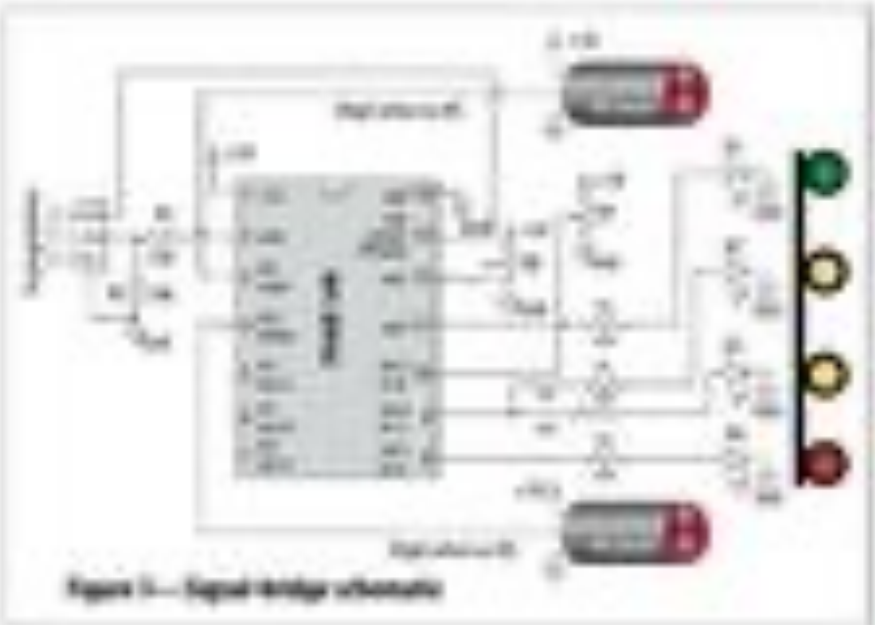


Figure 5—Signal bridge schematic

down for a moment to let the train through, then switches the yellow and red lights off and inserts a resistor and then a collector is detected. The method of detecting when the train has gone past particularly effective in sparse historical cases. The digital entry is used to form a 4-bit accurate pass without any IR detectors. Yes the method failure we have to find this code in C# a solution.

Monitoring signals. Monitoring signals can normally made up of three lights: one green, one yellow and one red. When a block of track ahead of the signal is occupied, the signal is red. When the block ahead of the next block is occupied, the signal is yellow. When both upcoming blocks are not occupied, the signal is green. This sequence can easily be programmed into the circuit. See the section below on how to read the code.

Photo 1 shows the first sensor using an engine and light on a bridge, **photo 2** shows the second sensor wiring, no engine yellow lights, and at **photo 3** signal lights the sensors are no engines. If both sensors see a train, the signal stays red.

The schematic diagrams in **figure 4** shows the hardware for the signal bridge. For the signal bridge that I used, there are four lights: two green no eg, two yellows in the middle, and one red at the bottom. If one signal has only a single yellow, just leave out [illegible] and resistor R4.

Online extras

Read all related links and more on the Web version of this article at www.electronicsworld.com. Type "train detection" in the search box.

Let's detect over a greater distance

As the shared lens was to be used in relatively strong reflective energy like sun it was at a distance of 6" to 12". There is however no easy way that can control this to every body to meet specs.

While experimenting with these IR sensors, I noted the sensitivity of various surface to computing the data of straight and horizontal lines, to see how well they were detected. And above any reasonable flat surface which is enough IR for the sensor to "see" to also restrict the sensor with a patch of reflective fabric, sticky tape that which is some very convenient material. Nothing as the surface sensors I was amazed at how well it worked by placing a 2" square patch of the material a distance away from the sensor. I have already detected objects passing through the IR beam over distances of up to 12 feet!

This material is available from a number of vendors on eBay, just search for 'reflective tape fabric' or 'silver reflective tape'.

The two photos below show the difference in brightness when shot without a flash (left photo) and with a flash. This opens up a number of things that could be done with these sensors, like counting people passing through an area, detecting insects or passing creatures, or triggering a camera when an animal passes by.

Just remember that this relies mainly on IR to control most of the time and will only open when the beam is broken, the opposite of what we got used to previously.

Reflective sensor example: one proximity sensor was shown with a flash, while the other was taken with a flash. The sensitivity is dramatic.

Input bridge with only two lights used and gaps: Many inputs have only two lights — a green one that says that the next block is clear and a red one that indicates that the next block is occupied. The hardware used achieves the two-lamp light signal can easily be modified for a three-light signal.

The circuit for the two-light signal is the same as for the three lights, except that the yellow LEDs (here, go to pin "5" on the microchip are omitted, as is the second IR sensor (which connects to pin "4"). The revised hardware is the same as that for the three-light signals that we called 1,027 and could trigger relays to turn them on/off. Whenever the IR sensor sees a train, the signal goes into either red or green. The program for the two-light signal, can be found online (see the website for details).

Conclusions

I have shown how sensors can be a reliable, cost-effective way of triggering a number of signalling and allowing you to build your own model trains, as well. Please let me know if you have any questions or observations that you'd like to share.

Diesel locomotives, both large and small, come and visit, play an integral part in making my train layouts fun, exciting, and easy to operate.

From the CTT Experts

Dynamic diesels!

SIX TIPS FOR REALISTIC DIESEL FLEET OPERATION ON ANY TOY TRAIN LAYOUT

Story by Stan Trzeniec • Photos by the author and Willard Jobard

Diesel-electric power was a real sell-out from the very start of production in the 1940s, and powered generation of any scale diesel locomotive is no different. Here's the remarkable role of a post-war gauge, an 0-6-0 switcher from 1948, whose power has been a potential problem on an outdoor railroad for the most part.

Through the years, this role and even a diesel power, as most railroads from Avenger. Accordingly, the operating practices of a diesel-powered railroad. Because this is because plan at the local yard of a mundane lengths, diesel locomotives are well-suited for work within a longer-haul, passenger-dominated, mainstream

of their diesel assistance was a key factor, regardless of what the question to answer was needed.

Based on my understanding and observations of prototypical practices, here are a number of tips aimed at long-time modeler who wants to employ diesel locomotives on a non-mainstream of operation.

Diesel and steam, as happy together. If you enjoy operating steam locomotives on a diesel-dominated railroad, be sure to add a diesel behind the steam power. Most railroads often require a diesel to operate as a backup in case something goes wrong with the antiquated steam power.

On my Cuyahoga Subdivision, I've found that locomotives made by the same manufacturer, both large and small, are the most suitable. For example, a small diesel locomotive paired with a small steam engine would look best together, as similar mechanisms and gearing help make them and keep smoother.

Who and watch. Solid-railroads don't have version makers or models when they have to move freight. Instead, they use a formula to ring up their adequate horsepower to haul the message over the line, which was founded to transit, hustlers ready the required units. An Electro-Motive (formerly EMD) F unit pulls solid train, another on train on Alco RS-3. Likewise, a modern General Electric AC6 hauls it up road this way for an EMD SD70M-2.

All colors of the rainbow. In present day railroading, packet motive power and the continuing merger trend can often result in a dizzying array of locomotive paint schemes from decals from apparently completely old roads can be seen sharing the workload. When it comes to any metric, don't be afraid to mix power brands, or even models on any train.

Lead loc. some Canadian National have F on the middle of a cab road.

Front, middle, rear. While it was most common to find a locomotive at the front of a train and a caboose at the rear, that practice has changed significantly. The caboose has vanished from the rails, but one or more distributed locomotives often operate in place of the end of a freight train. In fact, even some passenger trains operate in push-pull mode with a diesel unit positioned at both ends. In addition to units at the front and rear, you can find one or more diesels placed into the middle of some long and heavy modern freight trains.

Remarkably, technology allows these units to function in tandem under the control of a single operator. In a similar manner, radio control features in the newest toy trains enable operators to operate the locos — all without fear of dragging rain-off the track.

Long hood forward Short hood forward

Forward march. Unlike steam locomotives, diesels are equipped to operate facing forward or backward. In North America, all locomotives are designed to have the better "F" product on the cab unit that's normally operated as its front. However, that doesn't mean multiple diesels must be operated with their cabs all facing in the same direction of travel, a practice dubbed "elephant style".

Layout operators can also run diesels nose to nose or end-to-end, as long as the units all start moving in the same hood-it direction. Command control systems make it easy to synchronize both cabs, but conventional equipment may require you to adjust electronic hardware or reverse wires to the motor.

Smart dummies. The supreme selling point of today's toy train locomotives makes it easy to run a single powered unit to pull an entire train — even a long one. Consequently, many manufacturers offer cab-powered, or "dummy" diesel units with unique road numbers so you're allowed also multiple unit (MU) diesel set. While some dummies are simply shells on wheels, others feature electrical pick-ups to power lights, sounds, and smoke effects. Decoder equipped with these features allows you easily to operate at the front or the rear of a train.

Dynamic diesels at home

The author assembled this complete locomotive servicing terminal on his O gauge layout to include an engine house for handling everything from regular maintenance and minor repairs to major overhauls. Yard and fuel are also available at this location.

When constructing his servicing terminals, Ham included various details that he observed at real railroad sites, in this scene he used yellow grass granules covering an insulate quilted sand. A scale modified to represent oil absorbing mats installed between the rails, and plenty of O scale maintenance workers to help keep the diesels rolling around the clock.

Although a small, secondary facility, this one is still able to service diesel power like these Atlas O nos. 7266-1 and 1371-1 GP40s. Both are key used by night, thanks to the addition of tonight-tuned no. 1401 "76" yard lights.

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(513) 898-6000

Division Business Car

the NMRA @ home

Feature & Portrait Story by Jim Hayes (MMR)
Art Direction & Photography by [illegible]

As April 1st draws nearer, that's kind of like a teenager. One minute it acts like a child, the next it wants to be all grown up. Only in April's case, it's more like one minute it's winter, the next it's summer, and sometimes both at the same time. Just as complicated things further down in the Australasian region, it's not their winter nor summer ...it's autumn! No matter how you look at it, April is a month beg[illegible] the [illegible] of the division.

In the editions we'll be [illegible] MMR, go to a hotel, roll [illegible] and wander [illegible] and we [illegible] the main. But, it all [illegible] the [illegible] NMRA does for whom we [illegible] the Division team to the VFW post up-river, right down [illegible] (see time to [illegible] NMRA[illegible]).

Those MMRs

In the general [illegible] Model Railroader as a [illegible] know a lot as a Region. Some Divisions can even brag about having more than on their ranks. How about a Division that got three new MMRs all at the same time? That's exactly what happened at the Fremont Peninsula Division, meeting in the Northeastern Region. Members Bill Zawacki, Charles Miller, and Division Superintendent Charlie Crawford all got their MMR certificates the same night. Division AP Chair Bob Mallonee was the presidentmaster CME Cascade and Charlie Miller their Superintendent Crawford to the photos.) The smiles on the faces of the [illegible] [illegible] got [illegible] follow [illegible]. Keep going guys! By now they have probably discovered their MMR duties rings and learned the secret MMR handshake as well. Oh wait — I mean's supposed to tell about those things, eh?

My thanks goes to Peter "Simplified" another Piedmont Division MMR, for sending me the info and photos of this memorable event.

Utah Update

Regular readers know that over the last several months I've been blogging, planning, casting, and more would not be stopping me from a journey to collect as long as [illegible] Region and the many rolling [illegible] Model Railroading 101 course.

So far, we've been concentrating on collecting materials from Region and Divisions, but as I said from member Roger Rhodes challenged an expansion of that appeal. Yes to, Roger is a member of the Three Lakes Model Railroad Club and according to his e-mail, it's the only 100% NMRA Membership club in Wisconsin. Roger writes that the club often shows a half-dozen [illegible], all geared toward the beginning modeler. Three [illegible] are now part of the archive.

Now, just one challenge that other 100% NMRA Clubs may also offer Model Railroading 101 instructors, if you are up to the [illegible] from them, too. If you are a member of such a club and would like to have your [illegible] contacted get in touch with Rod Stark (rrbarn@[illegible]). Please use "Model Railroading" in the subject field of your e-mail. Thanks ever!

By the way, our friend Rod, and I contacted on this project was of help with the hobby and the NMRA to new people. As you may have noticed, our Pike Rebel, has been on a member quest to his column over the last few months. If you have any ideas for a blog that helps to your beginning model railroading friends, e-mail Mike at pikerebel@[illegible].

So, What's Your Story?

At issue. Everyone has a story to tell. Have you ever told someone [illegible] ago? Want about they're doing at Division 1, the Oppenheimer, New Zealand Division down in the Australasian Region. Do we're not even human at meetings according to an article I read in the Division's newsletter. They consist of short talks by members during which they tell how they got into model railroading and how and why they got involved with the NMRA.

Chances are your Division does something like this already. But generally, it's done on a one-for-one basis in meetings or members' characters. We, the public, at the members only get to hear the stories of those who serve, why they did. By doing things Oppenheimer way, we all get to hear a lot more and more interesting stories that [illegible]. Neat idea!

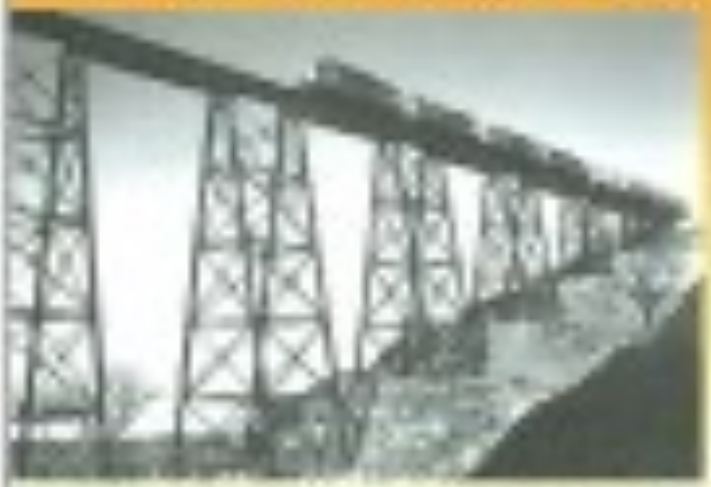
Where does on the second [illegible] the North Central Region's Division 4 and Rebel recruiting [illegible]. The [illegible] was also each member talked, one during [illegible], but about the railroad they model, along with details on [illegible] why they choose to what scale to do, and what brands and time period to represent. In addition, each member brought some power rolling stock, structures, pictures, or small plans to help illustrate what they were doing in their environment.

Normally, both Divisions try a three- and-in-[illegible]. Because the club's meetings [illegible] were simply divided that the split-club meeting would be [illegible] Now, did not time only because I'm considered a Division 4 [illegible] I [illegible] with meetings. It was great, but [illegible] [illegible]. Although I've visited many of the layouts I featured, I learned a whole lot I didn't know about my fellow members' railroads. Why not give [illegible] a shot, too? Adding a little [illegible] at your [illegible] meetings?

Don't Take Any Wooden Locomotives

Conventional Wisdom

The Tall Steel Viaduct



Mr. Cheap

Around the Greenberg Publishing Division, Jack Grinhaldi is sometimes known as "Mr. Cheap." Before you draw any crude conclusions from that statement, let me hasten to explain the reason for this entirely mistaken impression. It seems a column called "Mr. Cheap" for the Division's newsletter, *The Gazette*, Needham Heights. Here Jack presents clever ways to enhance the model-building experience while at the same time saving money. In one such column, Jack showed how to "repurpose" all those clip-on accessories badges you've been collecting for so many years. Just separate the badges from the clips, pinch the badges, and save the clips. The next time you need a small clamp to hold things together while applying glue, you grab one of these clips.

In another "Mr. Cheap" column, Jack wrote about the kinds of silly gifts you get if you order Modern magazine or a Greater Boyd newsstand. He says there's gonna be holiday stuffing on shows after you empty the pizza and wash down all those gumballs. Oh, the excitement we make for our hobby!

The Race is Here

With mobility advice with clear lapel headphones, and news of the all-knowing, all-seeing host of the Secret Division was in the Rocky Mountain Region. One being April the Guy has found us with his Mountain cottage name so all model railroaders have made the signal the Race.

But Sam found interesting things this year for you, dear Race. You will get a new commuter package stocked up spending all your time helping your friends more. Because of this you will have little trouble for modeling how scenes of the Alpines. Because all that model will make is hard for you to stand under your headwork. Model in scenes only.

Outside the box, that I said it's time to wind things up and come soon. Are you back here in June?

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Product Reviews

HO General Electric C30-7 is a powerful coal hauler

General Electric's diminutive shipping continues to be evident in this year's offering of HO scale. The latest model arrives DPS in the diesel locomotive from Broadway Limited Imports. It's a bit early to confirm a locomotive's DNA. Generally, overall reliability and accuracy, and locomotive's ability to run well, are the most important factors. But, because of the many variables that go into a locomotive's success, it's difficult to predict.

First prototype. General Electric introduced the C30-7 in late 1978. It replaced the top-selling U30C as GE's new, 6-axle, 3,000-hp, the first locomotive specifically designed for Western coal traffic. Powered by the GE 7FDL prime mover, 1,800 rpm, 4,000 gallons of diesel fuel, and many built-in reliability features.

Broadway Limited's model of the C30-7 closely follows the prototype based on GE's specifications published in the Maintenance Requirements 1980 manual locomotive in Kansas City. The model is a scale 67'-3" long (about 7.1").

Model construction. The unit received locomotive has a plastic body mount cab on sheet metal sides, the frame, the cab, and the body are cast plastic assemblies. The unit assembly has a powered (and) and dummy.

The body is well-supported by a frame and has been used extensively in locomotives. The shell is attached to the frame by two screws and is removed by two couplers through the pilots. Additional specific details are found in the manual.

The handrails are molded in colored plastic, so they're

Purchased in this issue

100 Broadway Limited Imports HO scale C30-7 locomotive

102 Bachmann N scale 2-8-8-2 locomotive

104 Atlas O scale Alco C-420 diesel road locomotive

106 MTH "Railroad Hobby" Maintenance Box 2.0, the "how-to" photo assistance "Railfanner MTH" locomotive cab

HO GE C30-7 road diesel

Price: $170-$5 $220 $5 each (see road names for details)

Manufacturer
Broadway Limited Imports
4 Digital Ave., Suite C
Concord Beach, Pa. 42170
www.broadwayltd.com

Description
Plastic and metal-body six-axle heavy-duty freight locomotive

Road names
Models without sound: $124.99: Union Pacific (pink $130.99); undecorated, $124.99 each
Four-window cab: Missouri Pacific & Santa Fe, Burlington Northern, Norfolk & Western, Chessie (red), Delaware Lines Ltd. (DP and undecorated
Two-window cab: 4108 (BN, Kansas, CSX, Louisville & Nashville, Amtrak, Norfolk Southern division, DP, and undecorated
Models with the QSI Quantum sound system: $249.99; UP units, $249.99; undecorated, $249.99 each
Four-window cab: 4108 (BN, AMTK (Turbine red), SCL, UP, and undecorated
Two-window cab: 4108 (BN, Conrail, CSX, Lehi (with NS, DP, and undecorated

The BLI C40-T has a top-profile microsaver to provide room for the electronic components. The dual speakers face down in the fuel tank.

Performance. The BLI C40-T is matched and recommended at 1.2 mph when pulling 50 tons. The top speed of 3.5 mph ought to allow it to stay at the rail of the maximum permissible grade across the 18.5 inch (mm) speed over (before) system.

The C40-T's drawbar pull is comparable to 10 four-cutting freight cars on straight and level track.

Electronic capabilities. Like other models of the BLI diesel-electric locos, this one supports a total sound of 64 notes (NC no longer necessary). This includes most 64 operations of the locomotive, with notes given to the top half of each (lowest) speed settings.

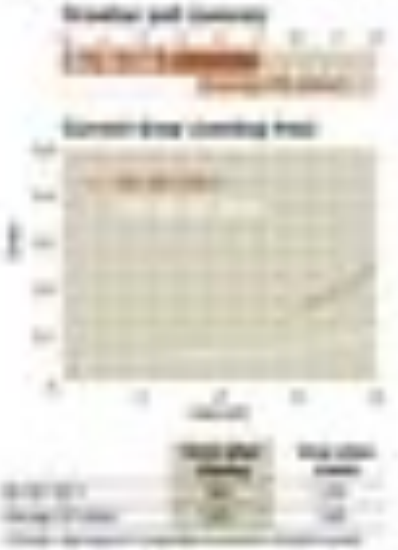
Unexpected for switchers, the 64 working settings incorporate several

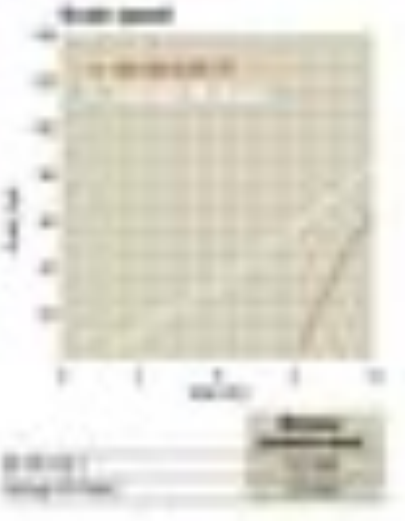
HO 330-T features

- Hydraulic DE diesel-electric
- Cab interior with rear window glazing
- DC units are NEC ready
- Die-cast metal frame
- Factory installed with Quantum sound system and electronic dual mode Digital Command Control (DCC) decoder
- Five pole can motor with flywheels
- Kadee magnetic knuckle couplers mounted at the proper height
- Minimum radius: 18"
- Weight: 8½ oz. (238 g)
- Prototype operation details
- Reversing constant headlight

and what sound actions functions are provided by BLI's proprietary Dual Mode electronic sound. In case you have a problem with one of these control subsystems, BLI has built in a simple reset function that uses a magnetic wand to easily restore all of the electronic functions to their factory delayed settings.

While our C40-T was on the DCC bench it immediately started to make a curious sample of an idling GE engine. There normally we can start and stop sounds on the decoder, a advanced before the sound source, and then very full





off on the speed to indicate on the locomotive engine or coast starting characteristics. The act operated bell is simply excellent, right down on the sound of the arc operated chopper we precise volume of the bell's ringing sounds.

The 3-pole wounded loco, provides no a a fabulous sound common-on-axel diesel locomotive.

This switcher's prototype GE locomotive is a good looking addition to the HO diesel yards. The model's outstanding electronic sound and operating features will be superb, however GE owner others ... the designs current rather

Product Reviews

HO scale 2-8-8-2 is USRA's largest engine

Two-engine 2-8-8-2 is a powerful articulated locomotive that appeared on many railroads in the United States during the First World War. Having to assess the space developed a class USRA standard steam locomotive design for various railroads.

This massive 2-8-8-2 Mallet articulated was the largest USRA class locomotive. It was 107'-2" long, stood 17'-4" tall, and weighed 771,000 pounds. Mallet articulated locomotive compound engines that used their power twice to do the very high pressure cylinders and then on the front low pressure cylinders.

Tenderless locomotives (i.e. others) and the Baldwin Locomotive Works built 60 USRA 2-8-8-2s in 1919 that very efficient in heavy freight and haulers. The USRA and 70 to their 648 @ 40 each, 20 to the Virginian, and 10 to the Chesapeake. All these companies, plus the Reading & the Illinois Central and the Northern Pacific, purchased additional copies of these locomotives after the war. Most of these big 2-8-8-2s remained until the mid-1950s.

The model This excellent Atlas 1988 locomotive matches the USRA prototype closely in the 1/87 American Railroads Locomotive Collection. A 12-page history booklet comes with each model along with an eight-page set of instructions and exploded parts drawings.

Three different highly detailed plastic boiler shells, drive rods, and two sets of cylinders are employed to produce these specific prototype locomotives. Wire piping and even short, cast-detail parts have been applied by hand. The cab interior includes a detailed backhead, cab seats, and sliding side windows.

All of the models have an hand-painted finish and are ready to be removed and replaced with other ones.

Articulating parts and a single motor concealed under the cross-tie mount drive. Both the leader and a direct to connect a separate and metal wheels that fills most of the space within the boiler.

Mechanism The USRA 2-8-8-2 has a solid mechanism made of metal and metal pieces with either Mallet or Radio-frame valve gear, depending upon the prototype. All of the drivers are powered and pick up the metal rollers.

The chassis is similar in that no other recent model locomotive. A large can motor fitted with a pair of worm-gear flywheels is attached to the inside of the boiler and ahead of the boiler. A three-link system through concealed universal joints.

A pick-eight-delivered tender has a cast metal frame with a plastic shielding underneath and the body. While engineer controls and cast shields under the boiler on all of the

HO scale 2-8-8-2 features

- Automatic dual-mode DC or DCC and sound control system
- Constant-directional lights
- DC models have HMRS NMRA plug
- Drawbar and 2-4 scheme
- Engine and tender weights
  - 24 operate engine down to the scenes
- Five-pole can motor with dual worm-gear flywheels
- Minimum radius: 18"
- Prime (wide magnetic wheels
  - couplers mounted at the proper height or right ends
- NMRA scale wheels in gauge
- Prototype detailing with Boiler or Backhead, cab, and
- Oil-steam lamps and LED smoke electrical pickup

Both engines swivel beneath the boiler on this large locomotive can operate around 18" radius curves. Even so it looks more realistic on wider curves.

driver) connects the rods for even more realistic effect. Wire plunger allows the model to negotiate an 18" radius curve and it rides on the rail centerline. Phosphor-bronze wipers from the rear coupler rigidly attached to the frame a hinged pan allows the three wipers to swing from side to side as required.

For 3-Rail service, LC-9600 pulse-width motor drives an elevated flywheel via two idler gears set at right angles to the motor shaft. The motor is situated in the rear engine unit.

Electronic system: A QSI Quantum sound and DCC control system is mounted within the tender. The decoder automatically selects and operates on conventional DC and no DCC systems. Its sounds are selected to most accurately reproduce those of the steam locomotive.

A 10-amp capacitor-based system all of the sound and DCC system's capabilities and how they

Performance: Our 3-rail test model operated smoothly on even 3 scale mph. It can pull an amazing, slow-speed train, starting at a standstill and maintaining 10 scale mph pulling freight cars on straight and level track. The sound effects are pretty realistic, although the real thing is not this noisy!

The model will fit into a scale 180 foot (54 degree) curve radius.

The sample locomotive would come ready operated in a reasonably large train with a relatively gradient when the manufacturer said. Another set of test points (starting over) slowly and steeply.

Overall, this locomotive is a superb "big engine" – the Hodges seem about

Most of the big 2-8-8-2's boiler is filled with weight to provide maximum tracking effect.

MR scale 2288 2-8-8-2

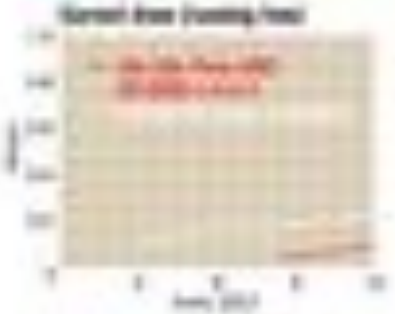
Price: $[illegible] with sound and DCC, $[illegible] only.

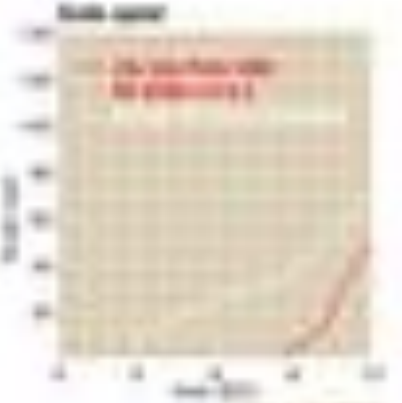
Manufacturer
Life-Like Products Inc.
1600 Union Ave.
Baltimore, MD 21211
www.lifelikeproducts.com

Description
Ready-to-run steam locomotive

Power source
Twin engine mounted with worm and DCC, one without

Engines from: Two T-16, with T-16s, Cleveland type, T-26, T-42, and T-60, Denver & Rio Grande Western type, T-60, T-66, and T-68, Rock & Western type, T-68, T-69, and T-70, Southern Pacific type, T-60, T-62, and T-63, and unlettered





	Scale speed (mph)	Current draw (amps)	Maximum pulling power (oz.)
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

O scale Alco RS-3 diesel road switcher looks good, performs smoothly

This Alco RS-3 road switcher is a good-looking model that captures the prototype's unique profile and can handle anything from passenger trains to yard switching. Made by Atlas in the #10 O-scale product line, it's offered in non-powered DC or Sound-and-DC versions. Prime and common road numbers are stock #10-2xxx-x (where x=wheel type/Master Command control and Sound/Diesel). 2-3

Atlas's #10-2 was a Lifelike road switcher introduced in May 1998. The prototype runs dual service engines. Atlas built 1,164 RS-3s for American railroads. We bought Canadian models, and 7 for Mexican lines. None of them were converted to run for lower than 70 years.

This model #10-2 closely matches a prototype drawing published in the *Model Railroader Cyclopedia Volume 2: Diesel Locomotives*. The body casting has long hood is detailed with a cab that can be re-

#10 O scale RS-3 diesel

Prices: non-sound DC, $219.95; sound DC, $299.95

Manufacturer: Atlas O, 378 Florence Ave, Hillside, NJ 07205-1708, www.atlas-o.com

Description: Ready-to-run plastic and metal diesel

Road names: (Two road numbers each) Delaware & Hudson, Great Northern, Reading, and Rock Island

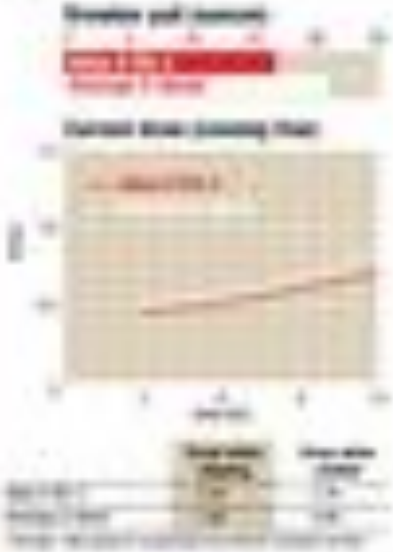
from the plan. The letter-D model depicts a unique CNR 4-unit so-called Montreal Locomotive Works demonstrator set.

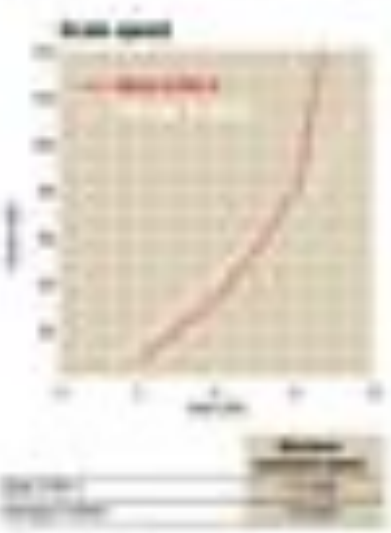
This 3-motored model is more features-rich than the previous Atlas O locomotives we've tested. It has a molded plastic body and cab with factory-painted and grab irons. Handrails and metal nameboards. The bright wire mesh represents an RS-3 multi-duct engine-air cooled radiator. Behind this is visible inside the upper radiator housing's etched metal grill.

Our two-unit DC sample has hood gaps. The same detail parts are used on these cab units and swinging pilots as the units of cruder castings are short – they should match the scribed step lines on the fairings.

Pilot mechanisms. The chassis is built on a stamped metal frame. The die-cast pilots, trucks, and fuel tank add weight for traction. Each truck is driven by a worm gear and motor with a flywheel. These motors serve as the truck bolsters and have a gimbal mounting that allows more rocking motion to negotiate uneven track.

The model rides on code-specified die-cast American Railroads type B wheels with accurately applied flanging caps. Axles, collectors, and other details in are properly gauged and black-and-nickel silver. Kadee #5 (medium) knuckle couplers #2 (1) coupler shanks. Each metal driven worm/gear turns, and the gear mounts the motors in the second axle on each truck.





O-scale RS-3 features

- Cab: exterior glazing
- Die-cast metal trapezoid-style roundels supplied
- Drawbar pull: 17 ounces
- Dual motors and flywheels
- Eight wheel drive and electric pick-up shoes
- Minimum radius: 36"
- Wiring harnesses for Digital Command Control (DCC) decoder installation
- Weight: 3 pounds 4 ounces

Electrical system. The RS-3 has a large printed-circuit (PC) board centered on aluminum. Weight added where locomotive temperature dictates the headlight and number boards at each end. The two-wire socket has a removable screwless PC board and connector cover on the edge of the main PC board for connecting the RS-3 to Digitrax Command Control, as outlined in the instruction manual.

Two running functions with sounds that connect to a DCC decoder are included with the model. Both functions have volume control among their features. The SOUND 1 function consists of Prairie 3-chime valve whistle, 3-chime bell, air-actuated air (operate, air-release sound, dynamic brake up-to-full of current.

Performance. The RS-3 owned operated well over seventy through our 4-speed range. However, an 18"- scale mph (at speed over such short the prototype) of a 36 mph range (depending upon your vision).

The model's 17 ounce drawbar pull is somewhat to 5 (non-rolling) cars on straight and level track.

As in the case supports 4-wheel couplers are mounted at the proper height on both ends and are compatible with Kadee couplers. The metal couplers have numbered coupler boxes.

Our sample came assembly painted as Rock Island's two tones, color scheme still at the evening to crisp and vibrant.

Those running units operated on railroads off your favorite American O-scale available at the time prototype, Rock Island still runs this with three RS-3 models. Jim Barker, senior editor.

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HO scale EMD FP45 packs plenty of pulling power

Through the prototype was designed to haul the heaviest, fastest passenger trains, Santa Fe's and passenger trains, Milwaukee Road's EMD-built Electro-Motive Division FP45 has the built-in power to haul practically any consist that could throw at it.

Equipped with onboard sound and digital command control (DCC), the model utilizing three detailed locomotive cabs is also a treat for detail fanatics with scribed metal grilles, rail-through fuel, and wide-width rivet grids.

Designed by request. In the mid-1960s, the Atchison, Topeka & Santa Fe wanted a new locomotive with a fully centered load to haul its new Super Chief and El Capitan. Though contemporary locomotives could do the job, the Santa Fe wanted an engine with a more streamlined look for its crack passenger trains. So, EMD (EMD) delivered the first new FP45s, painted in the Santa Fe's red, silver, and yellow passenger warbonnet scheme.

The Milwaukee Road ordered the same widows-between, lookout-planning to use them on Milwaukee service. After the railway of Montreal in 1971, both roads supported the locomotives on freight schedules and commuter train service downtown.

In addition to the FP45 in Santa Fe and Milwaukee Road passenger colors, Athearn is also offering an F45 without a cross generator, painted Gulf in the Santa Fe's freight scheme and in the Union Pacific's Big Boy Blue colors. The Santa Fe's Santa Fe's FP45 freight lot of the freight engines in 1971.

The test sample, Santa Fe #100 no. 101, came equipped with a DCC sound decoder. The locomotive is also available as a factory-installed model with eight-pin socket for upgrading to DCC.

Details, details. Athearn's FP45 looks great with even and inched hand parts enhancing the realism. Also detail-packed into the two-piece plastic body. The model matches the dimensions of a prototype drawing in the Model Railroader Cyclopedia Vol. 3, Diesel Locomotives. Milwaukee Road's cab at least, does a no-no on the prototype and the solid walls in the window and walkways look.

I particularly appreciated the factory-applied anti-grab grabs which are in clear on plastic of the scale variety that I always handmade on the road and have to paint them all. No accessory, a little delicate, but still clear. The glazed etched and cab handles and the grilles are also quite impressive, as are the DH rings. The paint scheme and lettering are crisp and vivid.

Performance. We tested an FP45 equipped with a short hood DCC decoder, measuring that it can run under 9 V, or 90 green

HO EMD FP45 and F45

Price: Direct current $159.98; Digital Command Control and sound $219.98

Manufacturer:
Athearn Trains
1965 Diamond Street
Carson, CA 90746
www.athearn.com

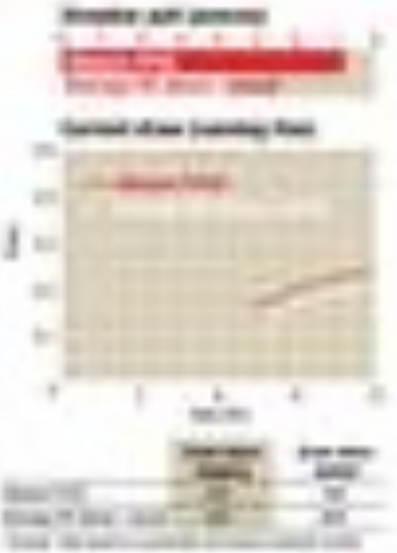
Description: Ready-to-run diesel and metal HO scale diesel locomotive

Prototype information: FP45 passenger generators; Montreal, Topeka & Santa Fe passenger locomotive scheme, road numbers 100, 101, and 107; Milwaukee Road yellow and gray, numbers 1, 2, and 3; and locomotives with or without dynamic brakes; F45 no steam generator; 4,000 diesel and diesel freight schedule; nos. 1408, 1420, and 1500; Great Northern Big Sky Blue; nos. 427, 430, and 438; and locomotives with or without dynamic brakes

A motor can sample in HO scale. First, the wild and smooth-operating locomotive. My motor measurements of the sound scheme give the engine a fairly high starting voltage. The sound scheme locked up at 3.5 volts, and coming up to 12 volts. With recommended voltage, the engine sound ramped up appropriately, and the locomotive started moving at 5 volts. At that voltage, the locomotive took off at a scale 35.5 scale mph. Right for a starting speed. So

PFM1 and F40 features

- All-wheel drive and electronic ventral
- Mechanical relay (MF-25 common sheath 4- gauge
- Detailed cab interior
- Direct current (DC) or dual-mode Digital Command Control (DCC) with onboard sound
- Pullen metal grills and sill rings
- Five-pole, skew-wound motor with dual worm flywheels
- Multiple, magnetically knuckle couplers at correct height
- Radio-remote control for sound activation of DCC-model running in DC mode
- Scale thickness wire grab irons



six-axle motor we used the newest and quietest that is known to break in), the model's performance improved, reaching an 1,111-mile with a scale speed of 4.7 mph.

Running at 12 volts DC, the locomotive consumed 300.5 scale amps (close to the prototype's exp specs of 300 mph).

When operating on 84 V at 30 speed steps, the engine didn't start rolling up to more until step 4, moving at 1.1 P scale mph. When I changed the decoder's starting voltage to 5.2 running on 1 the engine responded at speed step 3 rolling at a comparable slow 1.2 scale mph. At speed step 28, the engine first shows the need at a scale 101.3 mph, a good bit faster than the prototype.

The model also performed well using 128 speed steps, starting at 0.27 scale mph on speed step 1.

The locomotive's most impressive feature is its power. We created weights to go a motor hosting 1.75 pounds to additional cast silhouette forms. Any weight contributes to its superb hauling power of 1.1 ounces. That's enough to haul 166 standard 40ft scale freight cars on straight and level track.

Sound systems. The locomotive comes with a choice to play sounds under DC. With a one-car command the bell, the horn, a coupler crash sound, dynamic brake, and lighting effects.

A dreadful sound about the sound system is that when the dynamic brake is turned on, the sound starts running down in things on idle speed just as it would in the prototype.

The PFM1 decoder and the 1 speaker sure is incorrect at the top of the sound it runs. Though there are alternative processors that engine compartment is so fully packed that ours don't even entered. Many are not available. Running or testing when the engine was rolling.

Build quality/service. The PFM1 came on the scale during the last stretch of New 7 railroad passenger service on the Central Vision. It has more or explorer-class glass data with one of the battery steel frames cover trains, the Athens 0700 is a great room ... Amtrak Ohio, and even Metra

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Trackside Photos

It's a busy afternoon on Jay Pohl's ½ scale Arkansas Division layout. A pair of Missouri Pacific Alco road switchers wait at Rabit Knob Junction for a St. Louis-San Francisco local, led by GP35[a] no. 636, to enter Moffet trackage. Steve Crise photographed the scene.

New York, New Haven & Hartford RS-1 no. 0667 brings a local freight past the folks' Connecticut General Store in Wheat Hills. Colin Lou-Sasse took the photo on Bob Culatrello's HO scale Huntington & Hartford. Featured in the December 1998 issue of Model Railroader, Bob's remarkable first general store based on a prototype in Littleton, Maine.

Trackside Photos

Maintenance-of-way crews play an important role in keeping trains moving safely on the Lilyth Belt. Eric Brosnan of St. Peters, Mo., photographed this work train, with a spreader for shaping ballast and shims, waiting in the siding at Jamac, N.M., on his HO scale layout.

The lead locomotive in an Alco pairable. Here we see RS-3 no. 3 and RS-1 no. 1 leading a manifest freight on the Harrison N-N scale layout in Mesa, Ariz. Hal also took the photo.

Atchison, Topeka & Santa Fe train no. 4, the "Southern Pacific Mail," hustles through Pamerton, Texas, on Jay Miller's HO-scale Panhandle & Santa Fe. Jay, a professional photographer from Dallas, Texas, digitally added the sky, wheat field, diesel exhaust, and dust using Adobe Photoshop.

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Tony Koester

Though Tony models the late-steam era in HO, he's designed that where chassis different prototypes and scales, such as David Popp's N-scale Susquehanna Valley RR, which Tony enjoys operating. David Popp photo

The point Ryan wrote was economic; that since it takes almost as much time to operate a small railroad as a large one, why bother with the small one? "Why bother with all the wrangling and right-doing there is a total ITR team you have."

I like my little HO model railroad as an expression of myself, and also because there's more interest. We are a consumer base compared to other groups. I wonder the NMRA for example, which comes as customers in the millions.

Worse, as time grows very good at making new users, head of operations railroad enthusiasts body and are even smaller, it's called "Railroaders," the division of a large group into several relatively independent smaller ones.

Back in the formative years, we were simple model railroaders whose main problems probably thought of themselves as "N gauge," or "O gauge." I have progressively upgraded, bought or traded, but the membership quickly to three days. The term larger scale than No. 1 scale, which survives to this day as the standard gauge name of "G gauge" (Garden scale) and the garden railroad hobbyist.

Time along came many opinions of the current controlling enabler, and began and hold it, which as we know, as Bill was here. What the users we got a whole level of alphabet soup: A, TT, HO, S, O, G, and F, and my memory good old No. 1.

We also devised a simple way to express why gauge when from the P.D.T standard. Models 1 to scale size that was we have two gauge mark was measurement that. Many narrower versions were two. Model a scale more standard gauge railroad. I call it short of this.

The National Model Railroad Association, which will celebrate its 75th anniversary in the summer of 2007 in Milwaukee, the city of its birth, took on the task of developing standards and recommended practices to ensure interoperability. The goal was, and is, that the locomotive that was bought from Company A will operate with cars from Company B and track with no track made by Company C using a power supply made by Company D.

And so, a short-line hobbyist of famous railroads all was well.

Oh wait it? The needs of a railroad that growing hasn't dilemma, very does planned. Whatever we owe a thought of narrow or model railroaders, we seem to think of ourselves as N modelers or narrow gaugers or garden railway builders. Mostly that sounds we experiment and explore share. We succeed in helping as a result of unique specific requirements, shared with other as gauge or prototype specific conventions, and read with other as gauge or prototype specific model railroad magazines.

And here we are today. A recent conversation speaking to those who meets or shoulder rigs more crowded and our shared friends and others follow model railroaders.

I have an axe to grind here, or have to this one. At least one of these is that the editor of an annual issue of model Railroader called about Railroad Planning. I do this since as a consultant and an employee of Kalmbach Publishing Co., so my opinions are entirely my own. The editor did a large electronic notebook of the week's.

About Railroad Planning, the RR, is a general interest magazine, although as its title suggests, it's a bit more tightly focused on one aspect of our hobby. I have since received feedback that members of all scales and gauges read it also finds that I will get better focus to explore a that not scale or segment a single one-on-one note, clearly a good.

Many the supports of accident small to RRs is before that one general interest magazine or organization will have a comprehensive of RR railroad material. It does little good for the editor to point out that most articles are relevant to one scale or gauge, and some or even everything covered but one specific scale and delivered to me or talented.

So what's the point line? Time can decide model society that scale, road only one model railroad magazine, and belong to both one model railroad-oriented organization, thereby increasing our market clout through greater numbers?

Of course not. Any attempt to alter matters that much a few meeting nights. That said, we could all benefit from a good hug now and then. When our cases suggest dissent and differences, we desire a more unified face to those who are looking in and suggest we as we many training model trains. nmr

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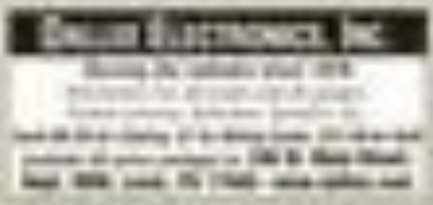

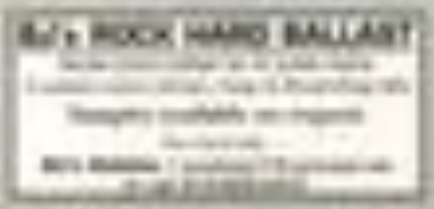

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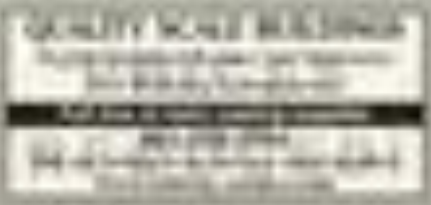

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Model Railroading is Fun!

David Popp

Teacher Mike Hair examines a recent graduating class from the Model Railroading University. Photo: Kalmbach photo

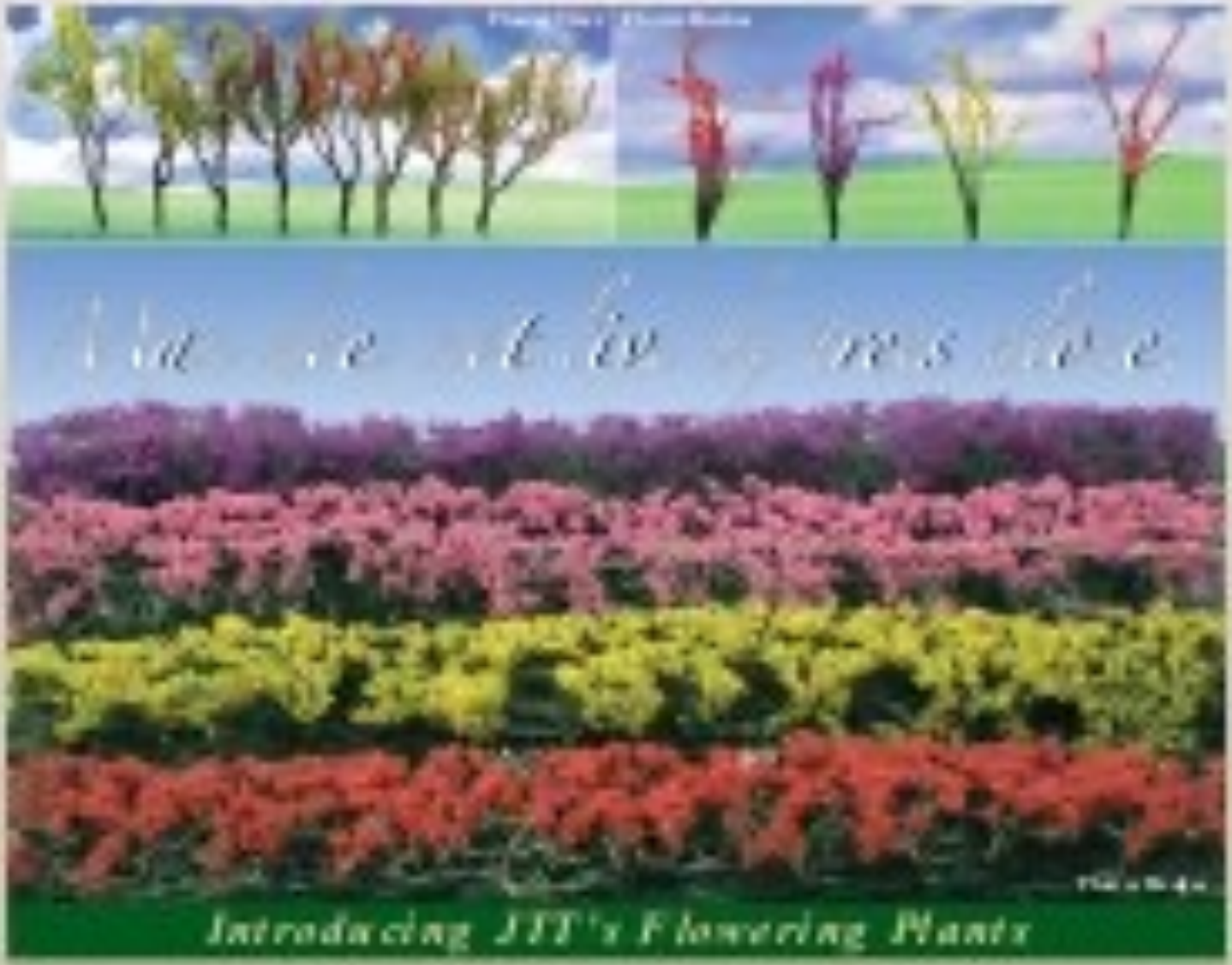
"I'm sorry, but with Positive Train Control coming, we need that big locking lever."

Model Railroading University w

World's Greatest Hobby

Model Railroader editor Mike Wilcox (right) reviews the 3-week curriculum created by fellow employee Gregg Sheen, during Take a Model Train to Work Day last year.

Trains at work



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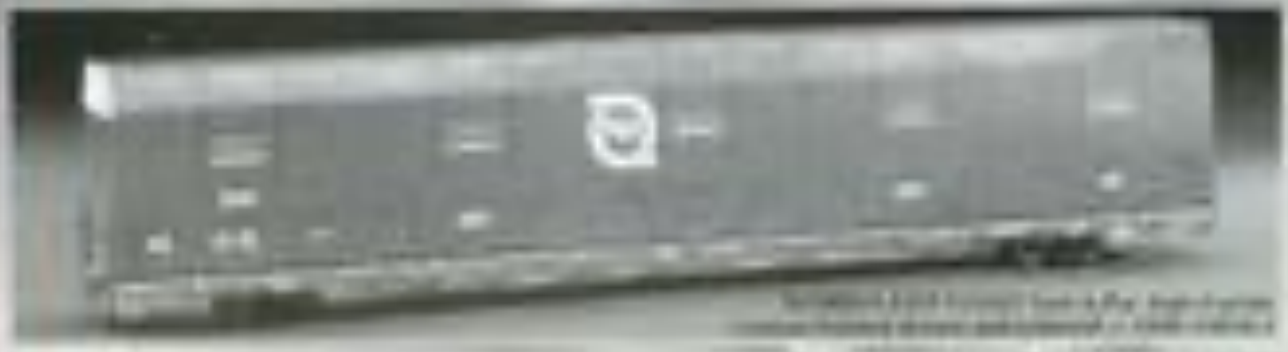

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